

## DC POWER SUPPLIES

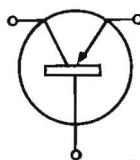
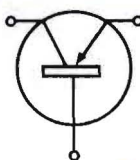


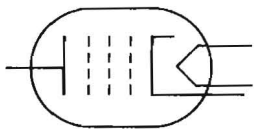
# INDEX

## to voltage regulated power supplies

### ACCORDING TO DESIGN GROUP

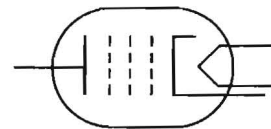
(See pages 30-31 for index by output voltage)

 <b>TRANSISTORIZED DESIGN GROUP</b>					 <b>TRANSISTORIZED DESIGN GROUP</b>				
MODEL	DC OUTPUT RANGE VOLTS    AMPS		REGULATION	PAGE	MODEL	DC OUTPUT RANGE VOLTS    AMPS		REGULATION	PAGE
SM 14-7M	0-14	0-7	0.1%	6-7	SC 36-2M	0-36	0-2	0.1%	8-9
SM 14-15M	0-14	0-15			SC 3672-0.5M	36-72	0-0.5		
SM 14-30M	0-14	0-30			SC 3672-1M	36-72	0-1		
SM 36-5M	0-36	0-5			SC 32-0.5	0-32	0-0.5	0.01%	10-11
SM 36-10M	0-36	0-10			SC 32-1	0-32	0-1		
SM 36-15M	0-36	0-15			SC 32-1.5	0-32	0-1.5		
SM 75-2M	0-75	0-2			2SC 32-1.5 Dual Output	0-32    0-32	0-1.5    0-1.5		
SM 75-5M	0-75	0-5			SC 32-2.5	0-32	0-2.5		
SM 75-8M	0-75	0-8			SC 32-5	0-32	0-5		
SM 160-1M	0-160	0-1			SC 32-10A	0-32	0-10		
SM 160-2M	0-160	0-2			SC 32-15A	0-32	0-15		
SM 160-4M	0-160	0-4			SC 60-2	0-60	0-2		
SM 325-0.5M	0-325	0-0.5			SC 60-5	0-60	0-5		
SM 325-1M	0-325	0-1			2SC 100-0.2 Dual Output	0-100    0-100	0-0.2    0-0.2		
SM 325-2M	0-325	0-2			SC 150-1	0-150	0-1		
					SC 300-1	0-300	0-1		
SM 14-7MX	0-14	0-7	0.01%	6-7	PSC 5-2	0-7.5	0-2	0.02%	12-13
SM 14-15MX	0-14	0-15			PSC 10-2	7.5-12.5	0-2		
SM 14-30MX	0-14	0-30			PSC 15-2	12.5-17.5	0-2		
SM 36-5MX	0-36	0-5			PSC 20-2	17.5-22.5	0-2		
SM 36-10MX	0-36	0-10			PSC 28-1	22.5-32.5	0-1		
SM 36-15MX	0-36	0-15			PSC 38-1	32.5-42.5	0-1		
SM 75-2MX	0-75	0-2			SR 12-50	5-13	0-50	0.1%	14-15
SM 75-5MX	0-75	0-5			SR 28-50	24-32	0-50		
SM 75-8MX	0-75	0-8			SR 48-30	44-52	0-30		
SM 160-1MX	0-160	0-1			HB 2M	0-325	0-200 ma	0.1%	16-17
SM 160-2MX	0-160	0-2			HB 4M	0-325	0-400 ma		
SM 160-4MX	0-160	0-4			HB 6M	0-325	0-600 ma		
SM 325-0.5MX	0-325	0-0.5			HB 8M	0-325	0-800 ma		
SM 325-1MX	0-325	0-1	0.1%	8-9	HB 20M	0-325	0-200 ma	0.01%	16-17
SM 325-2MX	0-325	0-2			HB 40M	0-325	0-400 ma		
SC 18-0.5M	0-18	0-0.5			HB 60M	0-325	0-600 ma		
SC 18-1M	0-18	0-1			HB 80M	0-325	0-800 ma		
SC 18-2M	0-18	0-2							
SC 18-4M	0-18	0-4	0.1%	8-9				0.01%	16-17
SC 36-0.5M	0-36	0-0.5							
SC 36-1M	0-36	0-1							

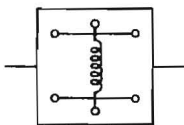
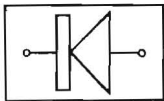


VACUUM TUBE DESIGN GROUP

DC OUTPUT RANGE				
MODEL	VOLTS	AMPS	REGULATION	PAGE
KR 11M	0-150	0-125 ma	<0.1%	20-21
KR 1M	100-200	0-125 ma		
KR 2M	195-325	0-125 ma		
KR 9M	295-450	0-125 ma		
KR 12M	0-150	0-300 ma		
KR 3M	100-200	0-300 ma		
KR 4M	195-325	0-300 ma		
KR 10M	295-450	0-300 ma		
KR 8M	0-150	0-600 ma		
KR 5M	100-200	0-600 ma		
KR 6M	195-325	0-600 ma		
KR 7M	295-450	0-600 ma		
KR 16M	0-150	0-1.5 Amp		
KR 17M	100-200	0-1.5 Amp		
KR 18M	195-325	0-1.5 Amp		
KR 19M	295-450	0-1.5 Amp		
800B	#1 0-600	0-200 ma	<0.1%	22-23
	#2 0-600	0-200 ma		
	Parallel 1 & 2	0-400 ma		
	0-600	0-400 ma		
430D	#1 0-450	0-300 ma		
	#2 0-450	0-300 ma		
	Parallel 1 & 2	0-600 ma		
	0-450	0-600 ma		
2400B	#1 0-150 Bias	0-5 ma		
	#2 0-400	0-150 ma		
	#3 0-400	0-150 ma		
	Parallel 2 & 3	0-300 ma		
400B	0-400	0-150 ma		
	0-150 Bias	0-5 ma		
	0-400	0-150 ma		
	0-150 Bias	0-5 ma		
103	#1 0-300	0-75 ma	unregulated	22-23
	#2 0-300	0-75 ma		
	#3 -50 to +50	0-5 ma.		
	Parallel 1 & 2	0-150 ma		



VACUUM TUBE DESIGN GROUP

DC OUTPUT RANGE				
MODEL	VOLTS	AMPS	REGULATION	PAGE
605	0-600 0-150 Bias	0-500 ma 0-5 ma	} <0.1%	22-23
615B	0-600 0-150 Bias	0-300 ma 0-5 ma		
1250B	0-1000	0-500 ma		
1220C	0-1200	0-50 ma		
1520B	0-1500	0-200 ma		
2500	0-2500	0-50 ma		
			MAGNETIC DESIGN GROUP	
DC OUTPUT RANGE				
MODEL	VOLTS	AMPS	REGULATION	PAGE
KM 236-15A	0.1-36	0-15	} 0.5%	24
KM 236-30	0.1-36	0-30		
KM 236-50	0.1-36	0-50		
KM 251	2-14	30a or 240 w	} ± 1%	25
KM 252	5-35	12a or 240 w		
KM 253	20-60	6a or 240 w		
KM 254	30-90	4a or 240 w		
KM 255	60-180	2a or 240 w		
			SOLID STATE DESIGN GROUP	
DC OUTPUT RANGE				
MODEL	VOLTS	AMPS	REGULATION	PAGE
PR 15-30M	0-15	0-30	} ± 1%	26-27
PR 38-15M	0-38	0-15		
PR 80-8M	0-80	0-8		
PR 155-4M	0-155	0-4		
PR 310-2M	0-310	0-2		

- For information on programmable current and voltage regulated power supplies, see pages 18-19
- Nomograph of voltage drop versus wire size and supply current on page 28





## power supply transformation

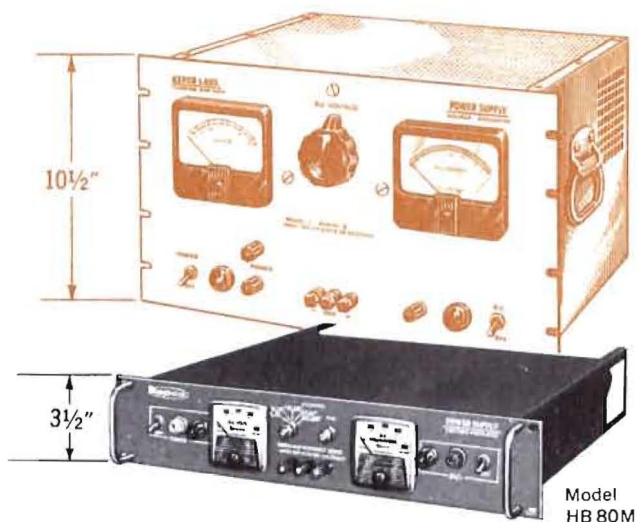
Over the past decade semiconductor technology and Kepco engineering have produced a series of quiet revolutions which have radically transformed the physical and electrical characteristics of Voltage Regulated Power Supplies. Sharp rack panel height reduction has been accompanied by striking improvements in performance.

*The models below illustrate typical contrasts between 1950 Kepco Power Supplies (which were pace-setting then) and their 1961 counterparts:*

### 0-325 vdc @ 800 ma

**CIRCA 1950**

LOAD REGULATION: 100 mv  
LINE REGULATION: 200 mv



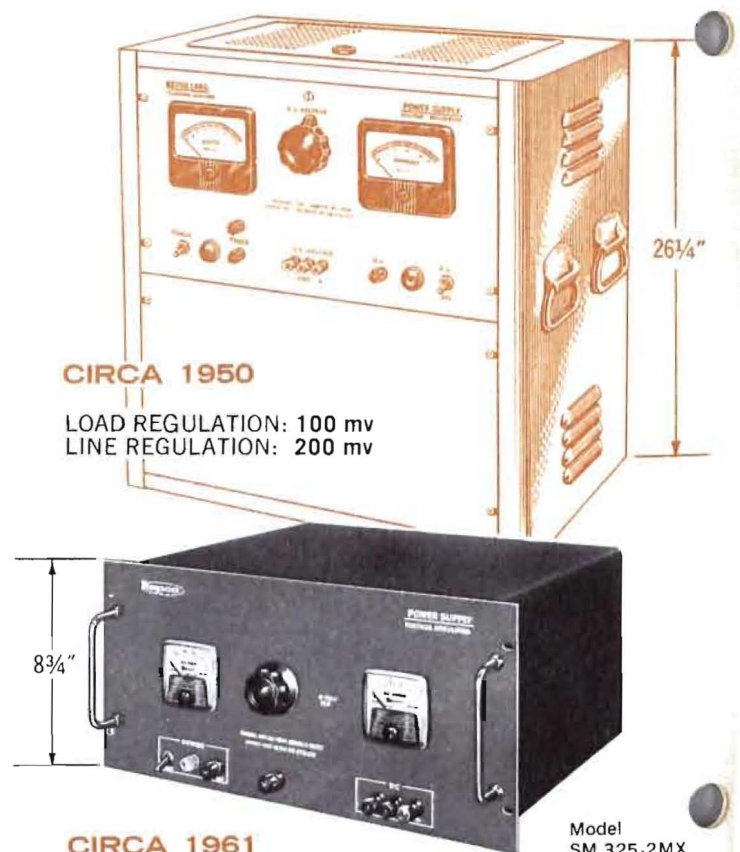
**CIRCA 1961**

LOAD REGULATION: 1 mv  
LINE REGULATION: 0.01%

### 0-325 vdc @ 2 amp

**CIRCA 1950**

LOAD REGULATION: 100 mv  
LINE REGULATION: 200 mv



**CIRCA 1961**

LOAD REGULATION: 1 mv  
LINE REGULATION: 0.01%





## A HISTORY OF WELL-REGULATED OUTPUT

**15 YEARS AGO** Kepco introduced an original series of well-regulated variable-output DC power supplies. Precise operating characteristics, rigorously specified, quickly established a new industry standard. Satisfied users of these original models have continued to specify them along with their sleeker (semiconductor) successors.

**SEMICONDUCTOR DESIGNS** were still uncommon when Kepco marketed its first transistorized power supplies. In addition to greater compactness, Transistorized units offered considerably improved regulation and stability characteristics in the low-voltage medium-current ranges. Many of the standard features of these precocious models have become special features for the industry (e.g. automatic current limiting, remote voltage control, adaptability to current regulated operation, short-circuit protection, remote sensing, etc.).

### TODAY

*Kepco offers a line of power supplies which is comprehensive in that:*

- 1.** It includes a wide variety of standard catalog models with many output ranges, regulator designs, and degrees of regulation.
- 2.** It reflects the thorough **comprehension** of power supply design gained by long-term specialization and imaginative engineering.



# TRANSISTORIZED SM GROUP

*voltage regulated power supplies*

## 0.1% REGULATION AND STABILITY

MODEL	DC OUTPUT RANGE VOLTS AMPS		OUTPUT IMPEDANCE OHMS MAX. (DC-1KC) (1KC-100KC)		DIMENSIONS H" W" D"		
SM 14-7M	0-14	0-7	0.002	0.02	3½	19	13⅞
SM 14-15M	0-14	0-15	0.001	0.01	5¼	19	13⅞
SM 14-30M	0-14	0-30	0.001	0.01	8¾	19	13⅞
SM 36-5M	0-36	0-5	0.01	0.1	3½	19	13⅞
SM 36-10M	0-36	0-10	0.005	0.05	5¼	19	13⅞
SM 36-15M	0-36	0-15	0.003	0.03	8¾	19	13⅞
SM 75-2M	0-75	0-2	0.04	0.4	3½	19	13⅞
SM 75-5M	0-75	0-5	0.02	0.2	5¼	19	13⅞
SM 75-8M	0-75	0-8	0.01	0.1	8¾	19	13⅞
SM 160-1M	0-160	0-1	0.2	1.0	3½	19	13⅞
SM 160-2M	0-160	0-2	0.1	0.6	5¼	19	13⅞
SM 160-4M	0-160	0-4	0.04	0.4	8¾	19	13⅞
SM 325-0.5M	0-325	0-0.5	0.7	3.0	3½	19	13⅞
SM 325-1M	0-325	0-1	0.4	2.0	5¼	19	13⅞
SM 325-2M	0-325	0-2	0.2	1.0	8¾	19	13⅞

## 0.01% REGULATION AND STABILITY

MODEL	DC OUTPUT RANGE VOLTS AMPS		OUTPUT IMPEDANCE OHMS MAX. (DC-1KC) (1KC-100KC)		DIMENSIONS H" W" D"		
SM 14-7MX	0-14	0-7	0.002	0.02	3½	19	13⅞
SM 14-15MX	0-14	0-15	0.001	0.01	5¼	19	13⅞
SM 14-30MX	0-14	0-30	0.001	0.01	8¾	19	13⅞
SM 36-5MX	0-36	0-5	0.01	0.1	3½	19	13⅞
SM 36-10MX	0-36	0-10	0.005	0.05	5¼	19	13⅞
SM 36-15MX	0-36	0-15	0.003	0.03	8¾	19	13⅞
SM 75-2MX	0-75	0-2	0.04	0.4	3½	19	13⅞
SM 75-5MX	0-75	0-5	0.02	0.2	5¼	19	13⅞
SM 75-8MX	0-75	0-8	0.01	0.1	8¾	19	13⅞
SM 160-1MX	0-160	0-1	0.2	1.0	3½	19	13⅞
SM 160-2MX	0-160	0-2	0.1	0.6	5¼	19	13⅞
SM 160-4MX	0-160	0-4	0.04	0.4	8¾	19	13⅞
SM 325-0.5MX	0-325	0-0.5	0.7	3.0	3½	19	13⅞
SM 325-1MX	0-325	0-1	0.4	2.0	5¼	19	13⅞
SM 325-2MX	0-325	0-2	0.2	1.0	8¾	19	13⅞

\*Depth behind panel

### SPECIFICATIONS: (FOR ALL MODELS)

#### REGULATION:

##### For 0.1% Models:

LINE: Less than 0.1% for 105-125 v ac line change, at any output voltage within specified range.

LOAD: Less than 0.1% or 3 mv, whichever is greater, for NO-LOAD to FULL-LOAD change, at any output voltage within specified range.

##### For 0.01% Models:

LINE: Less than 0.01% for 105-125 v ac line change, at any output voltage within specified range.

LOAD: Less than 0.01% or 1 millivolt, whichever is greater, for NO-LOAD to FULL-LOAD change, at any output voltage within specified range.

#### STABILITY:

##### For 0.1% Models:

Less than 0.1% or 6 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

##### For 0.01% Models:

Less than 0.01% or 2 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

#### RIPPLE:

Less than 1 millivolt rms.

#### OUTPUT IMPEDANCE:

See table. Maximum specification given for each model over the load frequency range indicated.

#### AMBIENT OPERATING TEMPERATURE:

-20°C to +50°C maximum. Protective circuit turns unit "OFF" should over-temperature condition occur. Reset with power ON-OFF switch.

#### TEMPERATURE COEFFICIENT:

##### For 0.1% Models:

Output voltage changes less than 0.05% per °C over specified ambient temperature range.

##### For 0.01% Models:

Output voltage changes less than 0.01% per °C over specified ambient temperature range.

#### RECOVERY TIME:

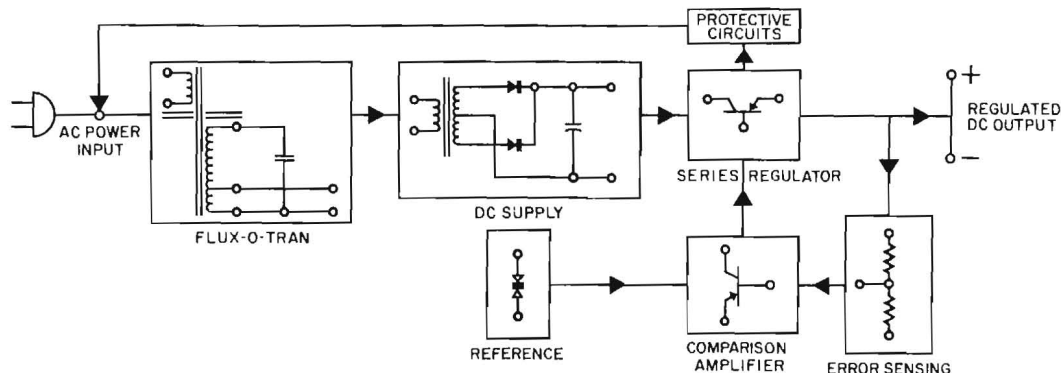
50 microseconds.

#### INPUT REQUIREMENTS:

105-125 v ac, 60 ±1 cps. Unit operates within regulation specification for line frequency changes of 57-63 cps (except 325 volt models).







## PHYSICAL SPECIFICATIONS:

### METERS:

Model nos. in table include voltmeter and ammeter; to specify "unmetered" unit delete suffix "M" from model no. (e.g. Model SM 160-1 for 0.1% regulation unit without meters).

### TERMINALS and CONTROLS:

*On front panel:* DC output and ground (5-way terminals). Five-turn continuously variable voltage control. Power on-off switch.

*On rear of chassis:* DC output and ground (5-way terminals). Remote error sensing terminals. All output terminals isolated from chassis; either positive or negative output may be grounded.

### INPUT CONNECTOR:

At rear of unit: three-wire safety ground line cord.

### MODULAR SUB-ASSEMBLIES:

All transistors plug in.

### STANDARD FINISH:

Gray hammertone (special finishes to order).

## PERFORMANCE FEATURES:

(For All Models)

### OVERLOAD PROTECTION:

Special power transformers allow output to be shorted without damage to unit. Dissipation requirements of series regulator actually reduced under overload. Ideal for lighting lamps and charging capacitive loads.

### OVERTEMPERATURE PROTECTION:

Thermal relay circuit turns off power automatically should an over-temperature condition occur; reset by power ON-OFF switch.

*Forced-air cooling:* Lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

### REMOTE ERROR SENSING:

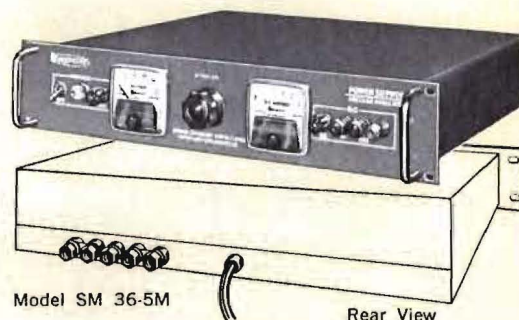
Additional "sensing" terminals enable specified regulation to be maintained at remote load, compensating for voltage drop across load supply leads.

### SERIES CONNECTION:

Units can be connected in series up to 400 v between chassis and either output terminal.

### NO VOLTAGE OVERSHOOT:

No output voltage overshoot from turn-on, turn-off or power failure.



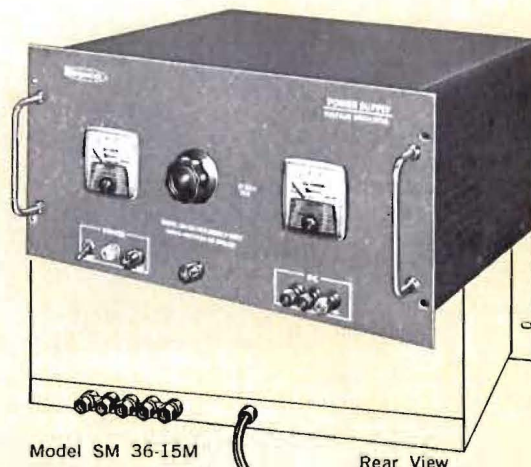
Model SM 36-5M

Rear View



Model SM 36-10M

Rear View



Model SM 36-15M

Rear View





kepco

# TRANSISTORIZED SC GROUP

*voltage regulated power supplies*

**0.1%** REGULATION  
AND STABILITY

MODEL	DC OUTPUT RANGE		OUTPUT IMPEDANCE OHMS MAX.		DIMENSIONS		
	VOLTS	AMPS	(DC-1 KC)	(1 KC-100 KC)	H	W	D*
SC 18-0.5M	0-18	0-0.5	.04	.4	4 1/4"	8 5/32"	13 5/8"
SC 18-1M	0-18	0-1	.02	.2	4 1/4"	8 5/32"	13 5/8"
SC 18-2M	0-18	0-2	.01	.1	4 1/4"	8 5/32"	13 5/8"
SC 18-4M	0-18	0-4	.005	.05	3 1/2"	19"	13"
SC 36-0.5M	0-36	0-0.5	.08	.8	4 1/4"	8 5/32"	13 5/8"
SC 36-1M	0-36	0-1	.04	.4	4 1/4"	8 5/32"	13 5/8"
SC 36-2M	0-36	0-2	.02	.2	3 1/2"	19"	13"
SC 3672-0.5M	36-72	0-0.5	.15	1.0	4 1/4"	8 5/32"	13 5/8"
SC 3672-1M	36-72	0-1	.08	.8	3 1/2"	19"	13"

Patent Pending

\*Depth behind panel

## SPECIFICATIONS:

(For All Models)

### REGULATION:

LINE: Less than 0.1% for 105-125 v ac line change at any voltage in the specified output range.

LOAD: Less than 0.1% or 3 mv, whichever is greater, for 0 to maximum load change at any voltage in the specified output range.

### STABILITY:

Less than 0.1% or 6 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

### RIPPLE:

Less than 1 millivolt rms.

### RECOVERY TIME:

50 microseconds.

### OUTPUT IMPEDANCE:

Specified separately for each model within the load frequency range indicated in table.

### AMBIENT OPERATING TEMPERATURE:

-20°C to +50°C maximum. Protective circuit turns unit "off" should an over-temperature condition occur. Reset with power on-off switch.

*Forced-air cooling:* Lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

### TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.05% per °C.

### TERMINALS and CONTROLS:

*On front panel:*—DC output, ground termination; one-turn voltage control (10-turn on special order). AC input power on-off switch.

*On rear of unit:*—DC output and ground, remote output voltage control and remote error signal sensing terminations on terminal board. Current limit control. Output terminals are isolated from the chassis. Either positive or negative output terminal may be grounded.

### INPUT REQUIREMENTS:

105-125 v ac, 50-65 cycles (400 cycle units available).

### METERS:

Model nos. in table include voltmeter and ammeter; to specify "unmetered" unit, delete suffix "M" from model no. (e.g. SC 18-4 for unit without meters).

### DIMENSIONS:

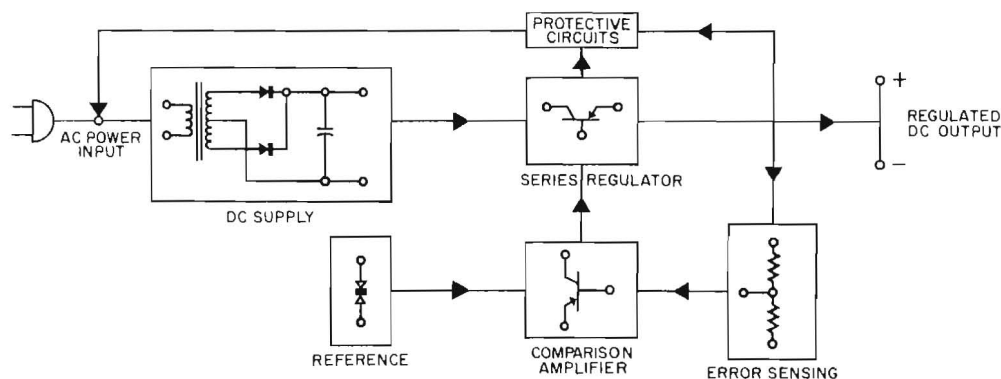
See table for specifications of each model.

### STANDARD FINISH:

Gray hammertone (special finishes to order).

kepco  
INC.





## FEATURES:

(FOR ALL MODELS)

### CURRENT LIMIT CONTROL:

All models in this design group are factory set to automatically limit at 120% of rated full-load current. A one-turn control provides adjustable current limiting from 10 to 120% of rated full-load current as a standard feature for all models except SC 3672-1 and SC 3672-0.5.

### SHORT CIRCUIT PROTECTION:

Unique circuitry enables continuous operation into a short circuit without the aid of fuses, circuit breakers, or relays. Unit returns instantly to operating voltage when overload is removed. Ideal for lighting lamps and charging capacitive loads.

### REMOTE OUTPUT VOLTAGE CONTROL:

Special terminations enable voltage control from remote location at 1000 ohms per volt, without internal modification (See pages 18 and 19).

### REMOTE ERROR SENSING:

Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads.

### CONSTANT CURRENT OPERATION:

Special terminal board connections enable constant current mode of operation without internal modification (See pages 18 and 19).

### NO VOLTAGE OVERSHOOT:

No output voltage overshoot from turn-on, turn-off or power failure.

### SERIES CONNECTION:

Units can be connected in series up to 400 v between chassis and either output terminal.

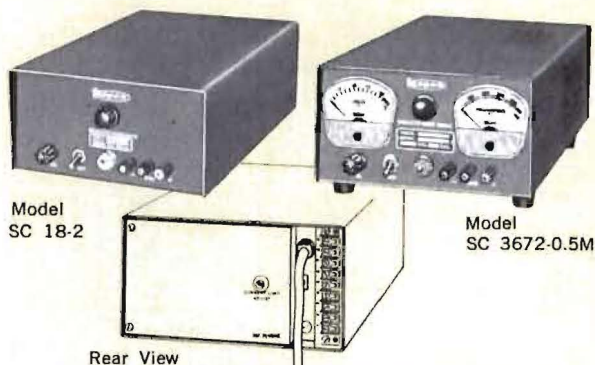
### OPTIONAL FEATURES

Meters optional; for unmetered units delete suffix "M" from Model No. in table.

Rack Mounting Adapter (5 1/4"H x 19"W) for 4 1/4"H x 8 3/32"W Models:

Model RA-2: for mounting 2 units side by side.

Model RA-3: for mounting single unit.



Model  
SC 18-2

Model  
SC 3672-0.5M

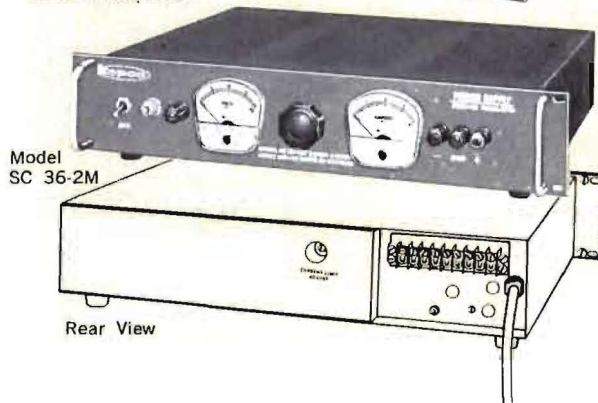
Rear View



Rack Adapter for single  
unit: Model RA3



Rack Adapter for two  
units: Model RA2



Model  
SC 36-2M

Rear View





# TRANSISTORIZED SC GROUP

*voltage regulated power supplies*

## 0.01% REGULATION AND STABILITY

MODEL	DC OUTPUT RANGE		OUTPUT IMPEDANCE OHMS MAX.		DIMENSIONS		
	VOLTS	AMPS.	(DC - 1 KC)	(1 KC - 100 KC)	H	W	D*
SC 32-0.5	0-32	0-0.5	0.02	0.2	3½"	19"	13"
SC 32-1	0-32	0-1	0.01	0.1	3½"	19"	13"
SC 32-1.5	0-32	0-1.5	0.01	0.1	3½"	19"	13"
2SC 32-1.5	0-32	0-1.5	0.01	0.1	7"	19"	13"
Dual Output	0-32	0-1.5	0.01	0.1			
SC 32-2.5	0-32	0-2.5	0.01	0.1	3½"	19"	13"
SC 32-5	0-32	0-5	0.005	0.05	5¼"	19"	13"
SC 32-10 A	0-32	0-10	0.001	0.01	8¾"	19"	14¾"
SC 32-15 A	0-32	0-15	0.001	0.01	8¾"	19"	14¾"
SC 60-2	0-60	0-2	0.01	0.1	5¼"	19"	13"
SC 60-5	0-60	0-5	0.005	0.05	8¾"	19"	14¾"
2SC 100-0.2	0-100	0-0.2	0.1	1.0	5¼"	19"	13"
Dual Output	0-100	0-0.2	0.1	1.0			
SC 150-1	0-150	0-1	0.05	0.5	5¼"	19"	13"
SC 300-1	0-300	0-1	0.1	1.0	8¾"	19"	14¾"

Patent Pending

\*Depth behind panel

### SPECIFICATIONS: (FOR ALL MODELS)

#### REGULATION:

LINE: Less than 0.01% for 105-125 v ac line change at any voltage in the specified output range.

LOAD: Less than 0.01% or 2 millivolts, whichever is greater, for 0 to maximum load change at any voltage in the specified output range.

#### STABILITY:

Less than 0.01% or 2 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

#### RIPPLE:

Less than 1 millivolt rms.

#### RECOVERY TIME:

50 microseconds.

#### OUTPUT IMPEDANCE:

Specified separately for each model within the load frequency range indicated in table.

#### AMBIENT OPERATING TEMPERATURE:

-20°C to +50°C maximum. Protective circuit turns unit "off" should an over-temperature condition occur. Reset with power on-off switch.

*Forced-air cooling:* Lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

#### TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.01% per °C.

#### TERMINALS and CONTROLS:

*On front panel:*—Terminations for DC output and ground, 10-turn voltage control, AC input power on-off switch.

*On rear of unit:*—Terminations for DC output and ground, remote output voltage control, and remote error signal sensing. One-turn current limit control. Output terminals are clearly marked and isolated from chassis. Either positive or negative terminal may be grounded.

#### INPUT REQUIREMENTS:

105-125 v ac, 50-65 cycles. (400 cycle units available.)

#### METERS:

Ammeter and voltmeter included as standard equipment for each model in this design group. 2% accuracy, full scale.

#### VOLTAGE CONTROL RESOLUTION:

10-turn; resolution 0.01% of maximum rated output voltage; variable over full output range.

#### DIMENSIONS:

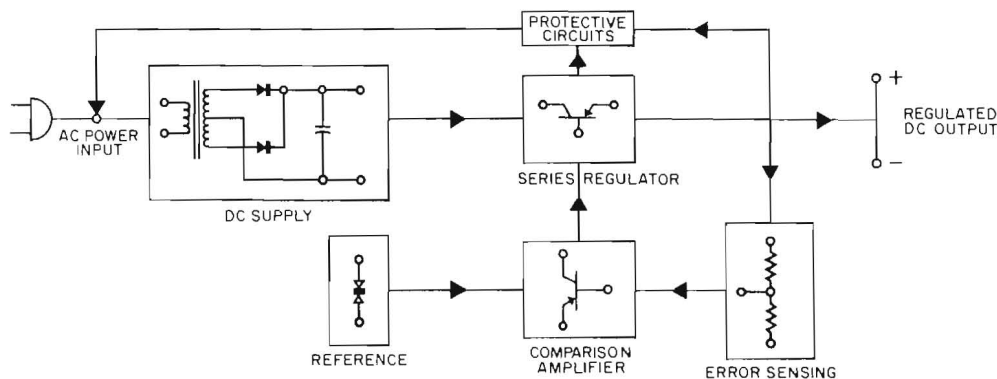
See table for rack mounting dimensions.

#### STANDARD FINISH:

Gray hammertone (special finishes to order).







## FEATURES: (FOR ALL MODELS)

### CURRENT LIMIT CONTROL:

All models in this design group are factory set to automatically limit at 120% of rated full-load current. A one-turn control provides adjustable current limiting from 10 to 120% of rated full-load current as a standard feature for all 0-32 volt models, except Models SC 32-10A and SC 32-15A.

### SHORT CIRCUIT PROTECTION:

Unique circuitry allows continuous operation into a short circuit without the aid of fuses, circuit breakers or relays. Unit returns instantly to operating voltage when overload is removed. Ideal for lighting lamps and charging capacitive loads.

### REMOTE OUTPUT VOLTAGE CONTROL:

Special terminations on terminal board enable voltage control from remote location at approximately 300 ohms/volt as standard feature for models SC 32-0.5, SC 32-1, 2SC 32-1.5, SC 32-1.5, SC 32-2.5, SC 32-5, and 2SC 100-0.2 (See pages 18 and 19).

### REMOTE ERROR SIGNAL SENSING:

Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads.

### CONSTANT CURRENT OPERATION:

Special terminal board connections enable constant current mode of operation without internal modification. Available only for Models SC 32-0.5, SC 32-1, SC 32-1.5, 2SC 32-1.5, SC 32-2.5, SC 32-5, and 2SC 100-0.2 in this design group (See pages 18 and 19).

### SERIES CONNECTION:

Units can be connected in series up to 400 v between chassis and either output terminal.

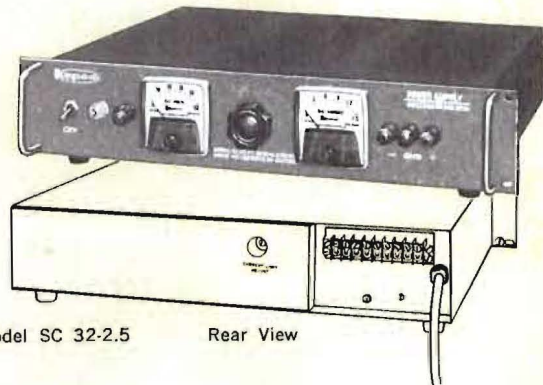
### NO VOLTAGE OVERSHOOT:

No output voltage overshoot from turn-on, turn-off or power failure.

- High efficiency.
- Continuously adjustable output voltage
- No voltage range switching
- Suitable for square wave pulsed loading.
- Compact, suitable for rack mounting or bench use.
- Low heat dissipation; forced air cooling.

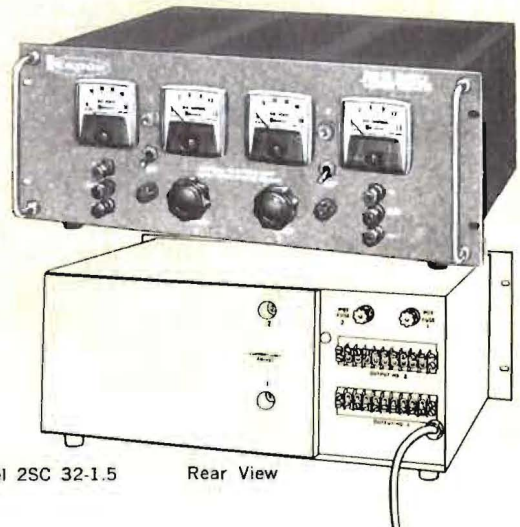


Model SC 32-5



Model SC 32-2.5

Rear View



Model 2SC 32-1.5

Rear View





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# TRANSISTORIZED PSC GROUP

voltage regulated power supplies

## 0.02% REGULATION AND STABILITY

MODEL	DC OUTPUT RANGE VOLTS	AMPS	OUTPUT IMPEDANCE	
			OHMS (DC- 1 KC)	MAX. (1 KC- 100KC)
PSC 5-2	0-7.5	0-2	0.01	0.1
PSC 10-2	7.5-12.5	0-2	0.01	0.1
PSC 15-2	12.5-17.5	0-2	0.01	0.1
PSC 20-2	17.5-22.5	0-2	0.01	0.1
PSC 28-1	22.5-32.5	0-1	0.01	0.1
PSC 38-1	32.5-42.5	0-1	0.01	0.1

### SPECIFICATIONS: (FOR ALL MODELS)

#### REGULATION:

LINE: Less than 0.02% for 105-125 v ac line change at any voltage in the specified output range.

LOAD: Less than 0.02% or 2 millivolts, whichever is greater, for 0 to maximum load change at any voltage in the specified output range.

#### STABILITY:

Less than 0.02% or 4 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

#### RIPPLE:

Less than 1 millivolt rms.

#### AMBIENT OPERATING TEMPERATURE:

-20°C to +50°C.

*Forced-air cooling:* lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

#### TERMINALS and CONTROLS:

*On base plate* — Barrier strip terminals for AC INPUT, DC OUTPUT and GROUND, REMOTE VOLTAGE CONTROL, REMOTE ERROR SENSING. VOLTAGE CONTROL (accessible through port in base plate). 25-turn pot continuously variable over full output range.

Output terminals are isolated from the chassis. Either positive or negative output terminal may be grounded.

#### OUTPUT IMPEDANCE:

See table. Maximum specification given for each model over the load frequency range indicated.

#### RECOVERY TIME:

50 microseconds.

#### TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.01% per °C.

#### INPUT REQUIREMENTS:

105-125 v ac, 50-65 cycles (400 cycle units also available.)

#### DIMENSIONS:

5¼" x 5¼" x 12¼".

#### STANDARD FINISH:

Gray hammertone (special finishes to order).

### FEATURES: (FOR ALL MODELS)

#### CURRENT LIMIT CONTROL:

One-turn control can be set to establish automatic current limiting at any value from 10 to 120% of rated full load. Maximum current limit is factory set at 120% of rated full load.

#### SHORT CIRCUIT PROTECTION:

Unique circuitry enables continuous operation into a short circuit without the aid of fuses, circuit breakers, or relays. Unit returns instantly to operating voltage when overload is removed. Ideal for lighting lamps and charging capacitive loads.

#### REMOTE OUTPUT VOLTAGE CONTROL:

Special terminations enable voltage control from remote location at approximately 1000 ohms per volt, without internal modification (See pages 18 and 19).

#### REMOTE ERROR SIGNAL SENSING:

Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads.

#### CONSTANT CURRENT OPERATION:

Special terminal board connections enable constant current mode of operation without internal modification (See pages 18 and 19).

#### SERIES CONNECTION:

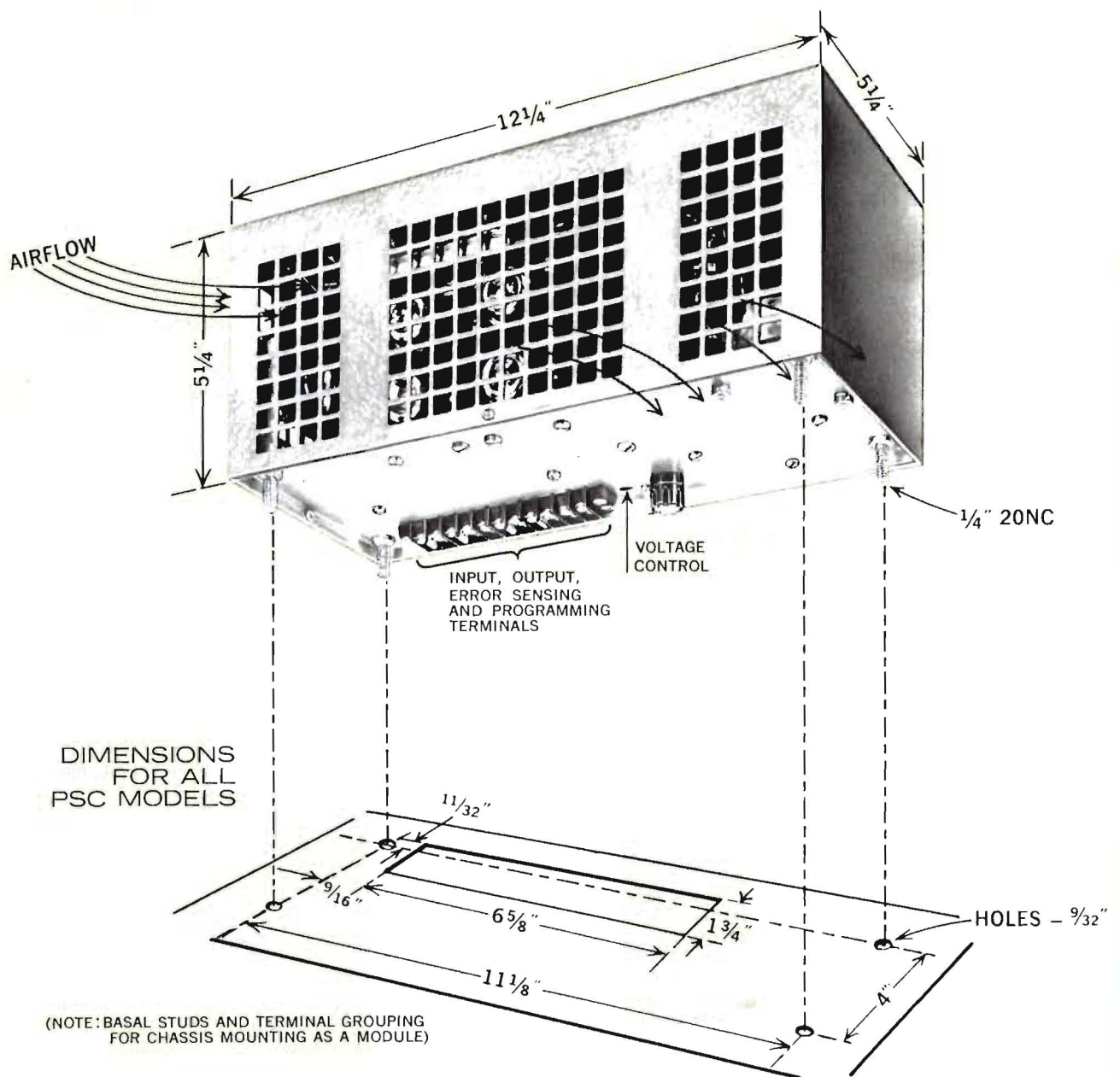
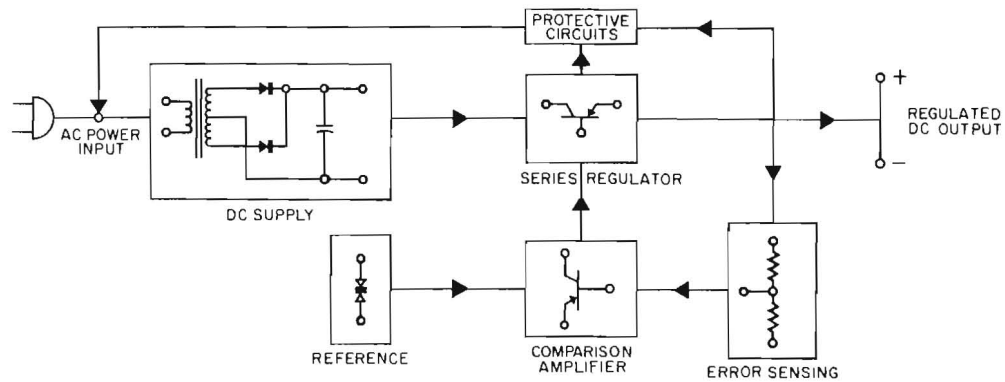
Units can be connected in series up to 400 v between chassis and either output terminal.

#### NO VOLTAGE OVERSHOOT:

No output voltage overshoot from turn-on, turn-off or power failure.

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# TRANSISTORIZED SR GROUP

*voltage regulated power supplies*

**0.1%** REGULATION  
AND STABILITY

MODEL	DC OUTPUT RANGE VOLTS AMPS		OUTPUT IMPEDANCE	
			OHMS (DC- 1 KC)	MAX. (1 KC- 100 KC)
SR 12-50	5-13	0-50	0.004	0.04
SR 28-50	24-32	0-50	0.012	0.12
SR 48-30	44-52	0-30	0.02	0.2

## SPECIFICATIONS: (FOR ALL MODELS)

### REGULATION:

LINE: 0.1% for  $\pm 10\%$  v ac line change at any voltage in the specified output range.  
LOAD: 1% for 0 to maximum load changes at any voltage in the specified range.

### STABILITY:

Less than 0.1% for 24 hours, at constant ambient temperature.

### TRANSIENT CHARACTERISTICS:

LINE: The output voltage will remain within the regulation specification for 20% step line voltage change.  
LOAD: The output voltage will remain within regulation specification for 100% step load-off change and 50% step load-on change.  
For 100% step load-on change, the output voltage drop is less than 1.5 volts for 30 milliseconds.

### RIPPLE:

Less than 1% rms.

### TEMPERATURE COEFFICIENT:

Less than 0.05% per °C.

### OUTPUT IMPEDANCE:

(See table). Maximum specification given for each model over the load frequency range indicated.

### AMBIENT OPERATING TEMPERATURE:

-20°C. to +50°C.

*Forced-air cooling:* lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

### INPUT REQUIREMENTS:

208/230 v ac,  $60 \pm 3$  cps, 3 phase, delta.

### VOLTAGE CONTROL:

25-turn pot, slotted-shaft control on rear of unit, continuously adjustable.

### DIMENSIONS:

H:  $8\frac{3}{4}$ " x W: 19" x D: 20" behind panel.

### METERS:

Voltmeter and ammeter standard equipment for each model in this design group.

### STANDARD FINISH:

Gray hammertone (special finishes to order).

## FEATURES: (FOR ALL MODELS)

### UNPRECEDENTED COMPACTNESS:

Fits standard  $8\frac{3}{4}$ " rack panel ( $\frac{1}{3}$  to  $\frac{1}{4}$  the height of equivalent range "magnetic" power supplies).

### SEMICONDUCTOR DESIGN:

Advantages of zener reference and transistorized series regulator for high current requirements.

### SHORT CIRCUIT PROTECTION:

Output may be shorted without damage to unit; current automatically limited to safe value; unit returns to operating voltage without overshoot when overload is removed. Ideal for lighting lamps and charging capacitive loads.

### REMOTE ERROR SENSING:

Additional "sensing" terminals enable specified regulation to be maintained directly at remote load.

### REMOTE OUTPUT VOLTAGE CONTROL:

Additional terminals for remotely programming output at 100 ohms per volt.

### OVER-TEMPERATURE PROTECTION:

Thermal relay automatically turns power "OFF" should overtemperature condition occur, reset with power ON-OFF switch.

### SERIES CONNECTION:

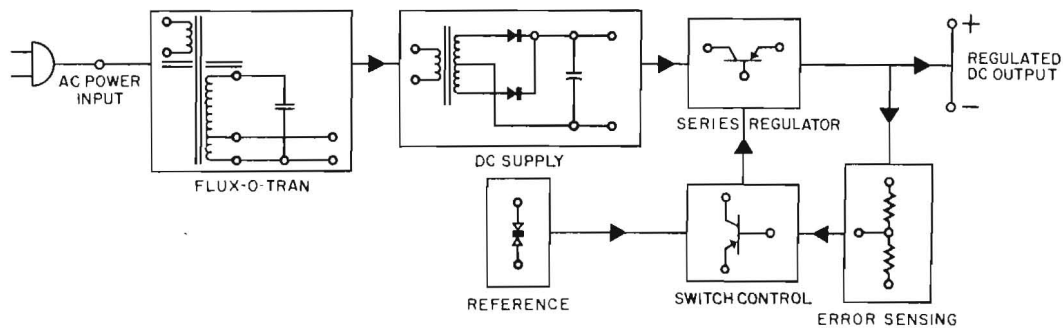
Units can be connected in series up to 400 v between chassis and either output terminal.

### NO VOLTAGE OVERSHOOT:

No output voltage overshoot from turn-on, turn-off or power failure.

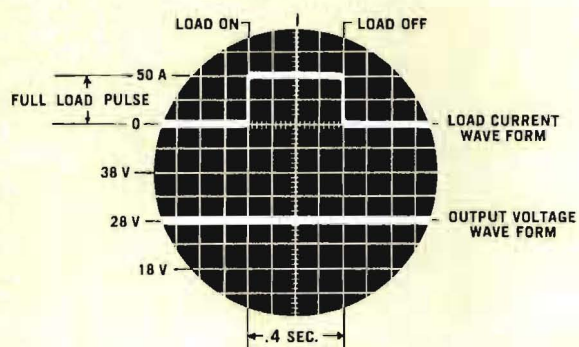
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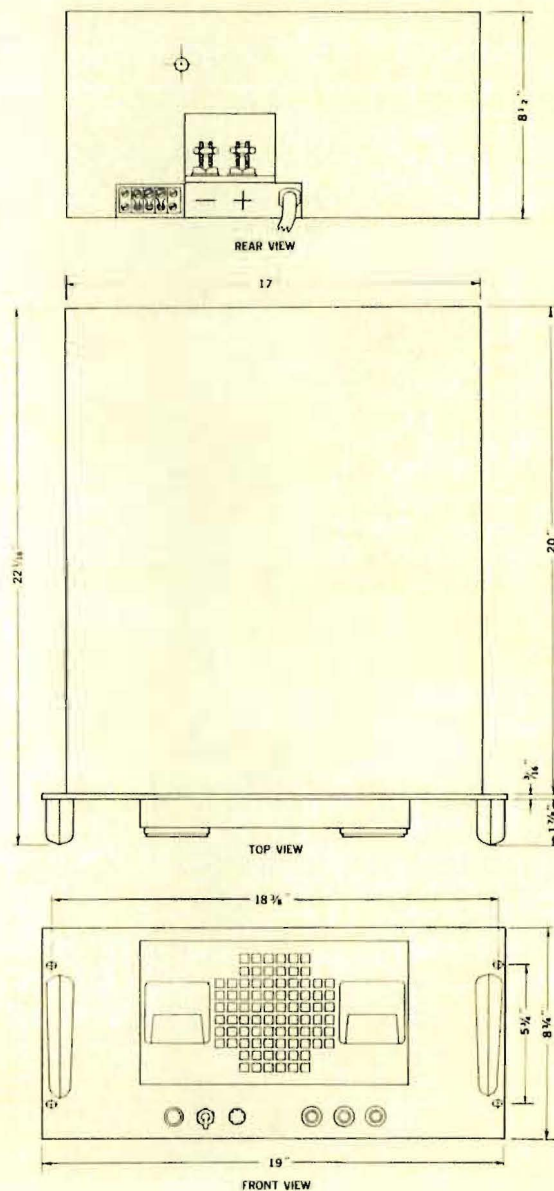
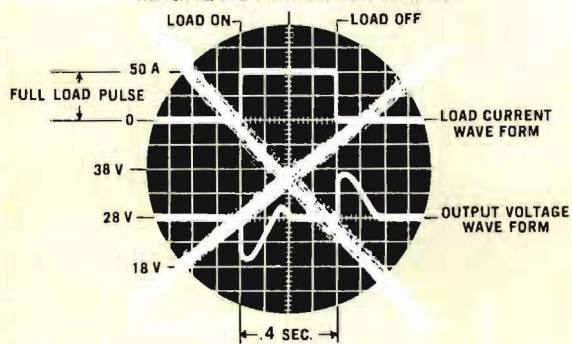


## "S R" REGULATOR DESIGN ELIMINATES TRANSIENTS

### MODEL SR 28-50



### BEST "EQUIVALENT" MAGNETIC AMPLIFIER UNITS





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# TRANSISTORIZED HB GROUP

*voltage regulated power supplies*

## 0.1% REGULATION AND STABILITY

MODEL	DC OUTPUT RANGE		REGULATION		OUTPUT IMPEDANCE OHMS MAX. (DC-100KC)
	VOLTS	MA	LOAD (0-Max)	LINE (105-125)	
HB 2M	0-325	0-200	0.1%	0.1%	3
HB 4M	0-325	0-400	or	0.1%	2
HB 6M	0-325	0-600	5mv.	0.1%	1
HB 8M	0-325	0-800	WIG*	0.1%	0.5

## 0.01% REGULATION AND STABILITY

MODEL	DC OUTPUT RANGE		REGULATION		OUTPUT IMPEDANCE OHMS MAX. (DC-100KC)
	VOLTS	MA	LOAD (0-Max)	LINE (105-125)	
HB 20M	0-325	0-200	0.01%	0.01%	0.3
HB 40M	0-325	0-400	or	0.01%	0.2
HB 60M	0-325	0-600	1mv.	0.01%	0.1
HB 80M	0-325	0-800	WIG*	0.01%	0.05

\* (Whichever is greater)

### SPECIFICATIONS: (FOR ALL MODELS)

#### REGULATION:

##### For 0.1% Models:

LINE: Less than 0.1% for 105-125 v ac line change, at any output voltage within the specified range.

LOAD: Less than 0.1% or 5 mv, whichever is greater, for NO-LOAD to FULL-LOAD change, at any output voltage within specified range.

##### For 0.01% Models:

LINE: Less than 0.01% for 105-125 v ac line change, at any output voltage within specified range.

LOAD: Less than 0.01% or 1 mv, whichever is greater, for NO-LOAD to FULL-LOAD change, at any output voltage within specified range.

#### STABILITY:

##### For 0.1% Models:

Less than 0.1% or 10 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

##### For 0.01% Models:

Less than 0.01% or 2 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

#### RIPPLE:

Less than 1 millivolt rms.

#### OUTPUT IMPEDANCE:

See Table. Maximum specification given for each model over the load frequency range indicated.

#### AMBIENT OPERATING TEMPERATURE:

- 20°C to +55°C maximum.

#### TEMPERATURE COEFFICIENT:

##### For 0.1% Models:

Output voltage changes less than 0.05% per °C over specified ambient temperature range.

##### For 0.01% Models:

Output voltage change less than 0.01% per °C over specified ambient temperature range.

#### RECOVERY TIME:

50 microseconds.

#### AC OUTPUT:

Two 6.5 v ac outputs at 6 amps each: series for 13 v CT at 6 a; parallel for 12 a at 6.5 v.

#### INPUT REQUIREMENTS:

105-125 v ac, 50-440 cps.

### PHYSICAL SPECIFICATIONS

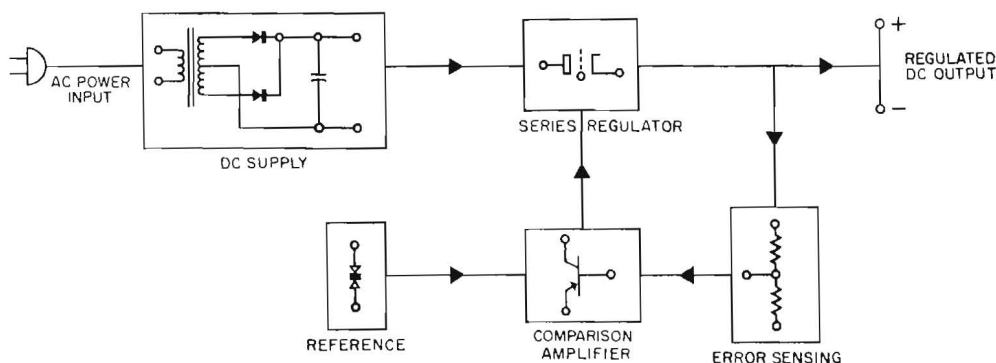
#### TERMINALS and CONTROLS:

On front panel:

DC OUTPUT AND GROUND (5-way terminals). VOLTAGE RANGE SWITCH: Obtains coarse output setting in five discrete voltage bands (0-70 v, 70-130 v, 130-195 v, 195-255 v, 255-325 v). FINE CONTROL: Provides continuously variable output voltage control within each band of voltage range switch. One-turn control for 0.1% models, Ten-turn control for 0.01% models. POWER ON-OFF SWITCH, DC ON-OFF SWITCH.

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#### On rear of chassis:

Barrier strip terminals:

DC OUTPUT AND GROUND, AC OUTPUTS (Two 6.5 v terminals at 6 amps each), REMOTE DC ON-OFF, REMOTE VOLTAGE CONTROL, PROGRAM TO ZERO.

All output terminals isolated from chassis; either positive or negative output may be grounded.

#### INPUT CONNECTOR:

At rear of unit: three-wire safety ground line cord.

#### MODULAR SUB-ASSEMBLIES:

All transistors plug in.

#### METERS:

Model nos. in table include voltmeter and ammeter; to specify "unmetered" unit delete suffix "M" from model no. (e.g. model HB 60 for unit without meters.)

#### STANDARD FINISH:

Gray hammertone (special finishes to order).

### FEATURES:

#### CONSTANT CURRENT OPERATION:

Current regulated output may be obtained without internal modification (See pages 18 and 19).

#### REMOTE OUTPUT VOLTAGE CONTROL:

Additional terminals for remotely programming output at 100 ohms per volt (see pages 18 and 19).

#### UNIQUE DESIGN:

Achieves high efficiency by utilizing transistorized reference and amplification circuitry for optimum regulation, stability and long life; plus tube series pass elements for reliable high voltage operation.

#### SERIES CONNECTION:

Units can be connected in series up to 400 v between chassis and either output terminal.

#### NO VOLTAGE OVERSHOOT:

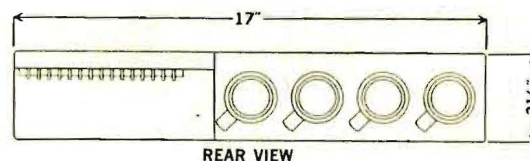
No output voltage overshoot from turn-on, turn-off or power failure.

#### REMOTE DC ON-OFF:

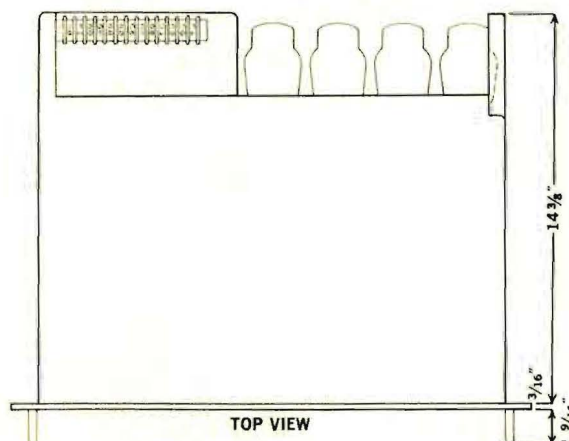
Additional terminals permit remote on-off switching of the power supply output; heaters remain connected for "stand-by" operation.



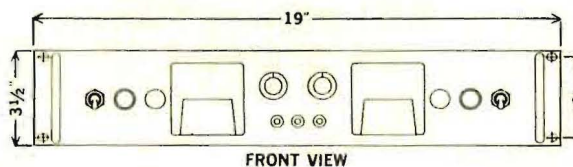
Model HB 8M



REAR VIEW



TOP VIEW



FRONT VIEW



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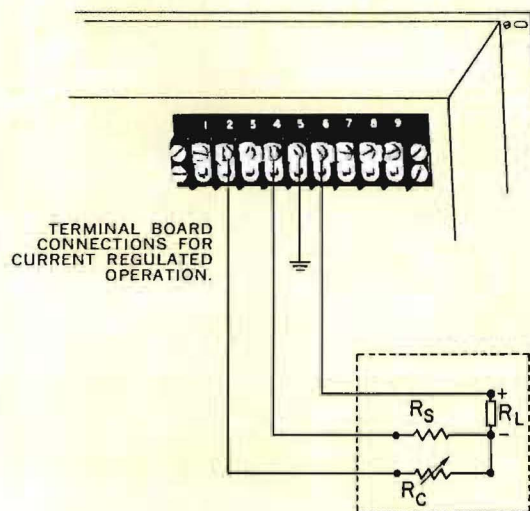
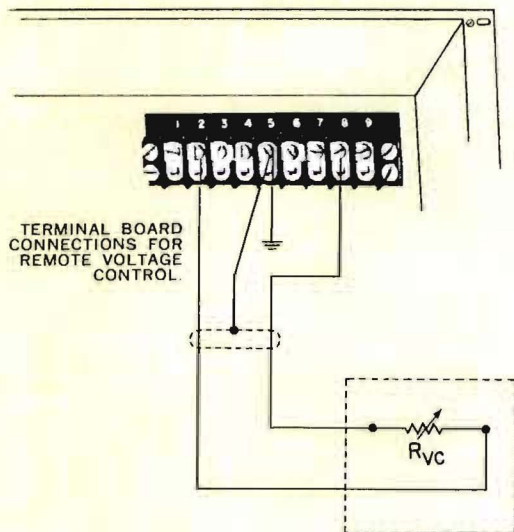
## PROGRAMMABLE

## CURRENT/VOLTAGE

## REGULATED POWER SUPPLIES

ALL MODELS LISTED IN THE TABLE ARE PROVIDED WITH "PROGRAMMING" TERMINALS WHICH PERMIT THE INTERNAL VOLTAGE CONTROL TO BE ELECTRICALLY DISCONNECTED AND REPLACED BY EXTERNAL CONTROLS TO OBTAIN: **(A) REMOTE OUTPUT VOLTAGE CONTROL**

**(B) CURRENT REGULATED MODE OF OPERATION**



CONVERSION IS SIMPLE AND COMPLETELY EXTERNAL

**(A)**

### PROCEDURE FOR REMOTE OUTPUT VOLTAGE CONTROL:

The output voltage of the power supply can be remotely "programmed" by control resistor ( $R_{VC}$ ) connected externally across the programming terminals as shown: (jumpers must be removed to disconnect the internal control resistor.)

1.  $R_{VC} = V_{OUT} \times \text{CONTROL RATIO}$ .

CONTROL RATIO is specified in table for each model. (e.g. for Model HB 6M, control ratio=100; hence for a  $V_{OUT}$  of 300 v,  $R_{VC}$ =30 K OHM).

**(B)**

### PROCEDURE FOR CURRENT REGULATED OPERATION:

This mode of operation can be obtained by connecting two external elements to the power supply as shown:

1. "Sensing" resistor  $R_S$  is connected in series with the output. Load current variations are "sensed" as proportional voltage changes across  $R_S$ . For optimum regulation,  $R_S$  is selected to produce 1 volt drop at the specific current desired ( $R_S = 1/I_{OUT}$ ).
2. Current control resistor  $R_C$  (variable) replaces the internal voltage control and permits the output current to be continuously varied from minimum to maximum.  $R_C$  equals the resistance required for a one volt output change, as specified by the CONTROL RATIO. (see table). (e.g. for model HB 6M,  $R_C$ =100 ohms).

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PROGRAMMABLE CURRENT and VOLTAGE REGULATED MODELS						
MODEL	CURRENT REGULATED DC OUTPUT RANGE AMPS*	VOLTS	CURRENT REGULATION LOAD (0-max $R_L$ )	LINE (105-125 v ac)	CURRENT RIPPLE (RMS)	CONTROL RATIO (Ohms/volt)
SC 18-0.5M	0.01-0.5	0-18	0.2%	0.1%	0.1%	1000
SC 18-1M	0.01-1.0	0-18	0.2%	0.1%	0.1%	1000
SC 18-2M	0.01-2.0	0-18	0.2%	0.1%	0.1%	1000
SC 18-4M	0.01-4.0	0-18	0.2%	0.1%	0.1%	1000
SC 36-0.5M	0.01-0.5	0-36	0.2%	0.1%	0.1%	1000
SC 36-1M	0.01-1.0	0-36	0.2%	0.1%	0.1%	1000
SC 36-2M	0.01-2.0	0-36	0.2%	0.1%	0.1%	1000
SC 3672-0.5M	0.01-0.5	36-72	0.2%	0.1%	0.1%	1000
SC 3672-1M	0.01-1.0	36-72	0.2%	0.1%	0.1%	1000
SC 32-0.5	0.01-0.5	0-32	0.02%	0.01%	0.1%	300
SC 32-1	0.01-1.0	0-32	0.02%	0.01%	0.1%	300
SC 32-1.5	0.01-1.5	0-32	0.02%	0.01%	0.1%	300
2SC 32-1.5	0.01-1.5	0-32	0.02%	0.01%	0.1%	300
Dual Output	0.01-1.5	0-32	0.02%	0.01%	0.1%	300
SC 32-2.5	0.01-2.5	0-32	0.02%	0.01%	0.1%	300
SC 32-5	0.01-5.0	0-32	0.02%	0.01%	0.1%	300
2SC 100-0.2	0.03-0.2	0-100	0.02%	0.01%	0.1%	300
Dual Output	0.03-0.2	0-100	0.02%	0.01%	0.1%	300
PSC 5-2	0.01-2.0	0-7.5	0.04%	0.02%	0.1%	1000
PSC 10-2	0.01-2.0	7.5-12.5	0.04%	0.02%	0.1%	1000
PSC 15-2	0.01-2.0	12.5-17.5	0.04%	0.02%	0.1%	1000
PSC 20-2	0.01-2.0	17.5-22.5	0.04%	0.02%	0.1%	1000
PSC 28-1	0.01-1.0	22.5-32.5	0.04%	0.02%	0.1%	1000
PSC 38-1	0.01-1.0	32.5-42.5	0.04%	0.02%	0.1%	1000
HB 2M	0.01-0.2	0-325	0.2%	0.1%	0.1%	100
HB 4M	0.01-0.4	0-325	0.2%	0.1%	0.1%	100
HB 6M	0.01-0.6	0-325	0.2%	0.1%	0.1%	100
HB 8M	0.01-0.8	0-325	0.2%	0.1%	0.1%	100
HB 20M	0.01-0.2	0-325	0.02%	0.01%	0.1%	100
HB 40M	0.01-0.4	0-325	0.02%	0.01%	0.1%	100
HB 60M	0.01-0.6	0-325	0.02%	0.01%	0.1%	100
HB 80M	0.01-0.8	0-325	0.02%	0.01%	0.1%	100

Complete specifications on voltage regulated mode given separately for all models in table. (see index pages 2 & 3)

\*  
NOTE:  
(For current regulated operation only):  
Higher output currents may be obtained by connecting two or more units in parallel.

### COMPARISON OF VOLTAGE and CURRENT REGULATION

#### SIMILARITIES:

Basic "servo" action provides control of either output parameter (voltage or current).

1. A SAMPLE VOLTAGE (i.e. a function of the output) is fed back and compared to an internal reference.
2. The comparison network immediately senses any change in the controlled output parameter and produces a proportional ERROR VOLTAGE.
3. A high-gain DC amplifier converts the ERROR VOLTAGE into a negative feedback which drives a SERIES REGULATOR.
4. The SERIES REGULATOR is in effect a variable resistance in series with the output. Any change in this internal resistance will produce a change in the voltage or current available at the output. Hence, by this means, the negatively phased feedback signal acting on the SERIES REGULATOR opposes any change in the controlled output parameter.

#### DIFFERENCES:

In the case of *voltage regulation* (i.e. Voltage is the controlled output parameter) :

1. The SAMPLE VOLTAGE is a function of the output. Thus the ERROR VOLTAGE is directly proportional to any change in the *output voltage*.
2. The resistance of the SERIES REGULATOR is increased by the feedback if the output voltage tends to rise from its set value (e.g. as a result of increasing line voltage or load impedance) ; or is decreased if the output voltage tends to fall, under converse conditions.

For a condition of varying  $R_L$ , this control action causes  $I_{OUT}$  to vary inversely as  $R_L$ , thus maintaining a constant product  $I_{OUT} R_L$  (i.e. — constant output voltage).

In the case of *current regulation* (i.e., current is the controlled output parameter) :

1. The SAMPLE VOLTAGE since it is taken from a sensing resistor in series with the output, is a function of the output current. Thus, the ERROR VOLTAGE is directly proportional to any change in *output current*.
2. The resistance of the SERIES REGULATOR is increased by the feedback if the output current tends to rise from its set value (e.g. as a result of increasing line voltage or decreasing load impedance) ; or is decreased if the output current tends to fall, under converse conditions.  
For a condition of varying  $R_L$ , this control action causes  $V_{OUT}$  to vary directly as  $R_L$ , thus maintaining a constant ratio of  $V_{OUT} : R_L$ , (i.e. — constant output current).





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# VACUUM TUBE KR GROUP

*voltage regulated power supplies*

## 0.1% REGULATION AND STABILITY

MODEL	DC OUTPUT RANGE		REGULATION				OUTPUT Z OHMS (DC-100KC)	6.3V AC Unregulated	DIMENSIONS		
	VOLTS	AMPS	LOAD (0-MAX) % or ΔV	LINE (105-125) % or ΔV					H	W	D*
125 Ma. KR SERIES											
KR 11M	0-150	125 Ma	0.1	0.2V	0.1	0.2V	0.9	Each Supply	7"	19"	11"
KR 1M	100-200	125 Ma	0.1	0.2V	0.1	0.2V	0.9	has one	7"	19"	7½"
KR 2M	195-325	125 Ma	0.06	0.2V	0.06	0.2V	0.9	3 Amp	7"	19"	7½"
KR 9M	295-450	125 Ma	0.04	0.2V	0.04	0.2V	0.9	Output	7"	19"	7½"
300 Ma. KR SERIES											
KR 12M	0-150	300 Ma	0.1	0.2V	0.1	0.2V	0.5	Each Supply	7"	19"	11"
KR 3M	100-200	300 Ma	0.1	0.2V	0.1	0.2V	0.5	has two	7"	19"	11"
KR 4M	195-325	300 Ma	0.06	0.2V	0.06	0.2V	0.5	5 Amp	7"	19"	11"
KR 10M	295-450	300 Ma	0.04	0.2V	0.04	0.2V	0.5	Outputs	7"	19"	11"
600 Ma. KR SERIES											
KR 8M	0-150	600 Ma	0.1	0.2V	0.1	0.2V	0.3	Each Supply	10½"	19"	13"
KR 5M	100-200	600 Ma	0.1	0.2V	0.1	0.2V	0.3	has two	10½"	19"	13"
KR 6M	195-325	600 Ma	0.06	0.2V	0.06	0.2V	0.3	10 Amp	10½"	19"	13"
KR 7M	295-450	600 Ma	0.04	0.2V	0.04	0.2V	0.3	Outputs	10½"	19"	13"
1.5 AMP. KR SERIES											
KR 16M	0-150	1.5 Amp	0.1	0.2V	0.1	0.2V	0.1	Each Supply	12¼"	19"	17"
KR 17M	100-200	1.5 Amp	0.1	0.2V	0.1	0.2V	0.1	has two	12¼"	19"	17"
KR 18M	195-325	1.5 Amp	0.06	0.2V	0.06	0.2V	0.1	15 Amp	12¼"	19"	17"
KR 19M	295-450	1.5 Amp	0.04	0.2V	0.04	0.2V	0.1	Outputs	12¼"	19"	17"

\*Depth behind panel

### SPECIFICATIONS: (FOR ALL MODELS)

#### REGULATION:

(See table) The regulation of each model is specified as a % or ΔV for 105-125 v ac line change or 0-maximum load change.

% values represent regulation obtained at maximum rated output voltage.

ΔV values represent maximum absolute change in output voltage at any output setting in specified range.

#### STABILITY:

Less than regulation specification over a period of 8 hours, at constant ambient temp.

#### RIPPLE:

Less than 3 millivolts rms.

#### OUTPUT IMPEDANCE:

Specified separately for each model within the load frequency range indicated in table.

#### AMBIENT OPERATING TEMPERATURE:

+55°C. maximum.

#### TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.01% per °C.

#### TERMINALS AND CONTROLS:

*On front panel:* AC INPUT ON-OFF SWITCH, PILOT LIGHT, DC OUTPUT ON-OFF SWITCH, PILOT LIGHT, VOLTAGE CONTROL (only on Models KR 16M, 17M, 18M, 19M).

*On rear of unit:* DC OUTPUT TERMINATIONS and GROUND, AC OUTPUT TERMINATIONS, VOLTAGE CONTROL (except Models KR 16M, 17M, 18M and 19M).

Output terminals are isolated from chassis.

#### INPUT REQUIREMENTS:

105-125 v ac, 50-65 cps. (Models KR 1M and KR 2M operate 50-440 cps).

#### METERS:

Model nos. in table include voltmeter and ammeter; to specify "unmetered" units, delete suffix "M" from model no. (e.g. Model KR 2 for unit without meters).

#### DIMENSIONS:

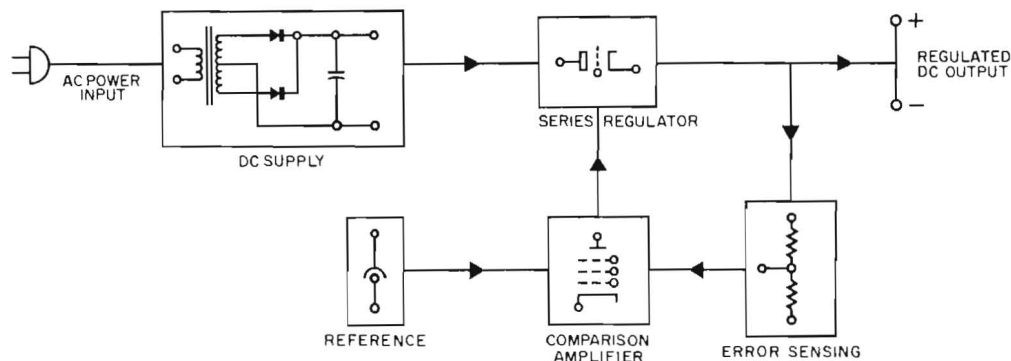
See table for rack mounting dimensions.

#### STANDARD FINISH:

Gray hammertone (special finishes to order).

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Model KR 1C

## FEATURES:

(FOR ALL MODELS)

- Continuously variable output voltage control. No switching.
- Either positive or negative output terminals may be grounded.
- Recovery time: 50 microseconds. Suitable for square wave pulsed loading.
- Wire harness and resistor board construction.
- Oil filled capacitors.
- Designed for rack mounting.
- Provision for remote output voltage control, on special order, for all models.
- Modification for operation with 400 cps input, on special order.

## OPTIONAL FEATURES:

(FOR ALL MODELS)

Meters optional; for unmetred units delete suffix "M" from model no. in table.

Cover and Handles optional; to include cover and handles add suffix "C" to model no. (e.g. KR 1MC for meters, cover and handles).



Model KR 4



Model KR 8M



Model KR 16MC



# VACUUM TUBE WIDE RANGE

*voltage regulated power supplies*

## <0.1% REGULATION AND STABILITY

MODEL	DC OUTPUT RANGE		REGULATION		LINE (105-125) % or ΔV	RIPPLE (RMS)	OUTPUT Z OHMS MAX. (DC-100K)	6.3V AC CT Unreg	DIMENSIONS		
	VOLTS	CURRENT	LOAD (0-MAX) % or ΔV	LINE (105-125) % or ΔV					H	W	D*
2400B	#1 0-150 Bias	0-5 ma	*	*	0.007	1 mv	*	10 Amp. 10 Amp.	10½"	19"	17"
	#2 0-400	0-150 ma	0.02	0.1V	0.04	3 mv	0.5				
	#3 0-400	0-150 ma	0.02	0.1V	0.04	0.2V	3 mv				
	Parallel 2 & 3 0-400	0-300 ma	0.02	0.1V	0.04	0.2V	3 mv				
400B	Series 2 & 3 0-800	0-150 ma	0.01	0.1V	0.03	0.3V	5 mv	0.5	7"	19"	11"
	0-400 0-150 Bias	0-150 ma 0-5 ma	0.02 *	0.1V *	0.04 0.007	0.2V *	3 mv 1 mv				
430D	#1 0-450	0-300 ma	0.02	0.1V	0.04	0.2V	3 mv	10 Amp. 10 Amp.	12¼"	19"	17"
	#2 0-450	0-300 ma	0.02	0.1V	0.04	0.2V	3 mv				
	Parallel 1 & 2 0-450	0-600 ma	0.02	0.1V	0.04	0.2V	3 mv				
	Series 1 & 2 0-900	0-300 ma	0.01	0.1V	0.03	0.3V	5 mv				
800B	#1 0-600	0-200 ma	0.01	0.1V	0.03	0.2V	3 mv	10 Amp. 10 Amp.	12¼"	19"	17"
	#2 0-600	0-200 ma	0.01	0.1V	0.03	0.2V	3 mv				
	Parallel 1 & 2 0-600	0-400 ma	0.01	0.1V	0.03	0.2V	3 mv				
	Series 1 & 2 0-1200	0-200 ma	0.01	0.1V	0.03	0.3V	5 mv				
605	0-600 0-150 Bias	0-500 ma 0-5 ma	0.01 *	0.1V *	0.02 0.007	0.2V *	3 mv 1 mv	0.2 *	20 Amp.	10½"	19" 17"
615B	0-600 0-150 Bias	0-300 ma 0-5 ma	0.01 *	0.1V *	0.02 0.007	0.2V *	3 mv 1 mv	0.3 *	10 Amp.	10½"	19" 13"
103◇	#1 0-300 #2 0-300 #3 -50 to +50 Parallel 1 & 2 0-300	0-75 ma 0-75 ma 0-5 ma 0-150 ma	Common B- Isolated from #1 & #2 } Unregulated				30 mv 30 mv 10 mv 30 mv	5 Amp.	8"	16"	8"
1250B◇	0-1000	0-500 ma	0.01	0.1V	0.02	0.2V	3 mv	0.2	26¼"	19"	13"
1220C	0-1200	0-50 ma	0.01	0.1V	0.02	0.2V	3 mv	0.5	10 Amp.	10½"	19" 13"
1520B◇	0-1500	0-200 ma	0.006	0.1V	0.01	0.2V	3 mv	0.5	21"	19"	13"
2500	0-2500	0-50 ma	0.004	0.1V	0.008	0.2V	5 mv	0.5	12¼"	19"	17"

\*Depth behind panel

### FEATURES:

- Continuously variable output voltage control. No switching.
- Fast recovery time; suitable for square wave pulsed loading.
- Either positive or negative DC output terminal may be grounded.
- Wire harness and resistor board construction.
- Voltmeter and ammeter standard equipment except for models 103, and 2500.
- Provision for remote output voltage control, on special order, for all models.
- Modification for operation with 400 cps input, on special order, for all models.
- All chassis are designed to mount directly into a standard 19" width relay rack. Also suitable for bench use.

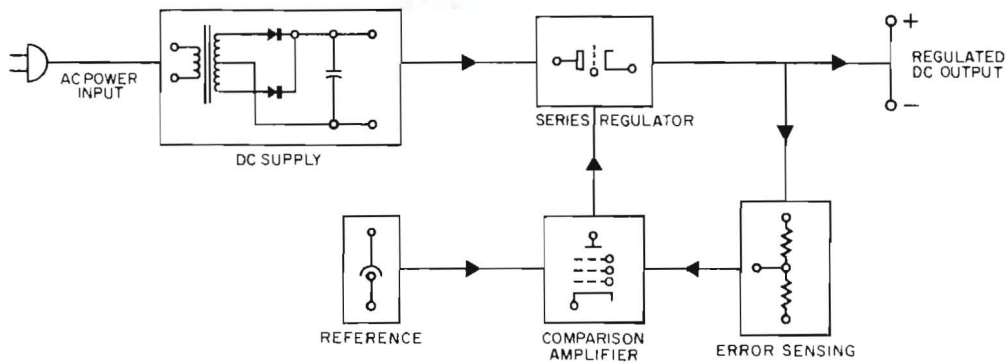
### \*REGULATION FOR BIAS VOLTAGE:

In the range of 0 to 150 volts the output voltage variation is less than 0.007% for line fluctuation from 105 to 125 volts. At 150 volts the output voltage variation is less than ½% for load variation from 0 to 5 ma. At settings below 150 volts the internal resistance of the supply will increase to a maximum of 25,000 ohms.

- ◇ These units are supplied in cabinets. The chassis, when removed from their cabinets, will mount directly into a standard 19" width relay rack. All units are designed for relay rack mounting or bench use.







## SPECIFICATIONS: (FOR ALL MODELS)

### REGULATION:

(See table) The regulation of each model is specified as a % or  $\Delta V$  for 105-125 v ac line change or 0-maximum load change.

% values represent regulation obtained at maximum rated output voltage.

$\Delta V$  values represent maximum absolute change in output voltage at any output setting in specified range.

### STABILITY:

Less than regulation specification over a period of 8 hours, at constant ambient temperature.

### OUTPUT IMPEDANCE:

See table. Maximum specification given for each model over the load frequency range indicated.

### RIPPLE:

See table for maximum specification applicable to each model.

### RECOVERY TIME:

50 microseconds.

### AMBIENT OPERATING TEMPERATURE:

+55°C maximum.

### TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.01% per °C.

### TERMINALS and CONTROLS:

*On front panel:*—AC and DC output terminations, AC input on-off switch, pilot light, DC output on-off switch, pilot light, Voltage controls.

For model 2400B, terminations on rear only.

*On rear of unit:*—AC and DC output terminations. Output terminals are clearly marked and isolated from the chassis.

Model 103 terminations on front only.

### INPUT REQUIREMENTS:

105-125 v ac, 50-65 cycles.

### STANDARD FINISH:

Gray hammertone (special finishes to order).



Model 800B

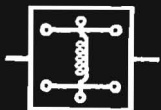


Model 605



Model 400B





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# MAGNETIC KM GROUP

*voltage regulated power supplies*

## 0.5% REGULATION AND STABILITY

MODEL	DC OUTPUT RANGE		REGULATION				DIMENSIONS		
	VOLTS	AMPS	LOAD (0-MAX) % or $\Delta V$		LINE (105-125) % or $\Delta V$		H	W	D*
KM 236-15A	0.1-36	0-15 Amp	0.5	0.025	0.5	0.025	12 1/4"	19"	17"
KM 236-30♦	0.1-36	0-30 Amp	0.5	0.025	0.5	0.025	26 1/4"	19"	17"
KM 236-50♦	0.1-36	0-50 Amp	0.5	0.025	0.5	0.025	36 3/4"	19"	17"

♦ These units are supplied in cabinets.

\*Depth behind panel

### SPECIFICATIONS: (FOR ALL MODELS)

#### REGULATION:

LINE: Less than 0.5% or 0.025 volt, whichever is greater, for line changes 105-125 volts at any voltage in the specified output range.

LOAD: Less than 0.5% or 0.025 volt, whichever is greater, for load changes from 0 to maximum, at any voltage in the specified output range.

#### STABILITY:

Less than 0.5% or 25 mv, whichever is greater, over a period of 8 hours, at constant ambient temperature.

#### RIPPLE:

Less than 0.5% or 40 millivolts rms, whichever is greater.

#### AMBIENT OPERATING TEMPERATURE:

+55°C maximum.

#### TEMPERATURE COEFFICIENT:

Output voltage changes less than 0.05% per °C.

#### INPUT REQUIREMENTS:

KM236-15A, KM236-30: 105-125 volts, 57-63 cycles.  
KM236-50: 208 volts  $\pm 10\%$ , or 230 volts  $\pm 10\%$ , 57-63 cycles, single phase.

#### RECOVERY TIME:

0.2 second. Output voltage within 0.5% during recovery time for line transients 105-125 volts.



Model KM 236-15A

#### TERMINALS and CONTROLS:

On front panel:—DC output terminations and ground (except on KM 236-50), DC output on-off switch, pilot light, AC input on-off switch, pilot light, Coarse and fine voltage controls.

On rear of unit:—DC output terminations and ground. Remote error signal terminations.

Output terminals are clearly marked and isolated from chassis. Either positive or negative terminal may be grounded.

#### METERS:

Voltmeter and Ammeter standard for all models in this design group.

#### STANDARD FINISH:

Gray hammertone (special finishes to order).

#### FEATURES: (FOR ALL MODELS)

##### REMOTE ERROR SIGNAL SENSING:

Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads.

##### SHORT CIRCUIT PROTECTION:

An automatic current limiting device allows direct shorting of the output terminals without damage to the supply.

##### SERIES CONNECTION:

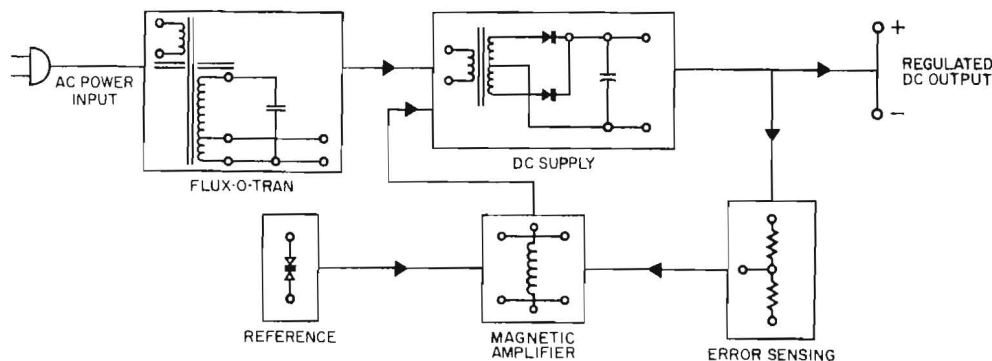
Units can be connected in series up to 400 v between chassis and either output terminal.

##### NO VOLTAGE OVERSHOOT:

No output voltage overshoot from turn-on, turn-off or power failure.

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## ±1% REGULATION AND STABILITY

MODEL	DC OUTPUT VOLTS (Continuously Variable)	MAXIMUM DC OUTPUT				RIPPLE RMS %
		IN RANGE	MAX. AMPS	IN RANGE	MAX. WATTS	
KM 251	2-14	2-8 VDC	30	8-14 VDC	240	0.5
KM 252	5-35	5-20 VDC	12	20-35 VDC	240	0.2
KM 253	20-60	20-40 VDC	6	40-60 VDC	240	0.05
KM 254	30-90	30-60 VDC	4	60-90 VDC	240	0.04
KM 255	60-180	60-120 VDC	2	120-180 VDC	240	0.03

### SPECIFICATIONS:

(FOR ALL MODELS)

#### REGULATION:

**LINE:** Less than  $\pm 1\%$  for 100-130 v ac line change at any voltage in the specified output range.

**LOAD:** At any voltage in the specified output range the load regulation can be optimized to within  $\pm 1\%$  by means of a control adjustment on the front panel.

#### STABILITY:

Less than  $\pm 1\%$ , over a period of 8 hours, at constant ambient temperature.

#### RIPPLE:

Specification given separately for each model at maximum rated output voltage. (See table)

#### AMBIENT OPERATING TEMPERATURE:

+55°C maximum.

#### TEMPERATURE COEFFICIENT:

Output voltage changes less than  $\pm 0.1\%$  per °C.

#### INPUT REQUIREMENTS:

100-130 v ac, 60 cycles.

#### TERMINALS and CONTROLS:

*On front panel:* DC output terminations and ground, AC input on-off switch, pilot light, output voltage control (continuously variable). Load regulation control.



Model KM 252

*On rear of unit:* DC output terminations and ground, remote error signal terminations.

Output terminals are clearly marked and isolated from chassis. Either positive or negative terminal may be grounded.

#### RECOVERY TIME:

0.3 second recovery from full load transients; output voltage remains within  $\pm 1\%$  of setting for 105-125 v ac line transient.

#### METERS:

Voltmeter and Ammeter standard for all models in this design group.

#### DIMENSIONS:

H: 7" x W: 19" x D: 13" behind panel.

#### STANDARD FINISH:

Gray Hammertone (special finishes to order).

### FEATURES: (FOR ALL MODELS)

#### REMOTE ERROR SIGNAL SENSING:

Special terminations enable regulation to be maintained directly at the load by providing a means of compensating for voltage drops across the load supply leads.

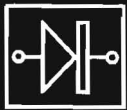
#### OVERLOAD PROTECTION:

An automatic current limiting device allows direct shorting of the output terminals without damage to the supply. Ideal for lighting lamps and charging capacitive loads.

#### SERIES CONNECTION:

Units can be connected in series up to 400 v between chassis and either output terminal.





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# SOLID STATE PR GROUP

*voltage regulated power supplies*

## ±1% LINE REGULATION

MODEL	DC OUTPUT RANGE		RIPPLE % rms
	VOLTS	AMPS	
PR 15-30M	0-15	0-30	4
PR 38-15M	0-38	0-15	2
PR 80-8M	0-80	0-8	1.5
PR 155-4M	0-155	0-4	1
PR 310-2M	0-310	0-2	0.5

### SPECIFICATIONS: (FOR ALL MODELS)

#### REGULATION:

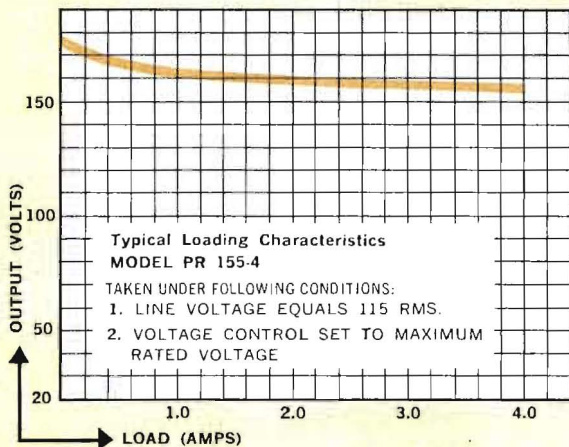
LINE: ±1% for 115 ±10 v ac line change at any output voltage within specified range.

LOAD — at maximum output voltage:

Less than 2% output voltage change for 50-100% load change.

Less than 4% output voltage change for 25-100% load change.

(See Graph below for typical load characteristics)



#### RIPPLE:

Specification given separately for each model at maximum rated output voltage. (See table)

#### AMBIENT OPERATING TEMPERATURE:

−20°C to +55°C.

*Forced-air cooling:* lateral circulation by blowers insures efficient heat transfer; permits stacking units without overheating.

#### INPUT REQUIREMENTS:

105-125 v ac, 60 cps ±5%.

Note: % changes in line frequency produce approximately equal % changes in output voltage, linearly within stated input frequency tolerances.

### PHYSICAL SPECIFICATIONS: (FOR ALL MODELS)

#### TERMINALS AND CONTROLS:

*On front panel:* DC OUTPUT and GROUND (5-way terminals), VOLTAGE CONTROL, OVERLOAD CIRCUIT BREAKER, POWER ON-OFF SWITCH.

*On rear of Chassis:* DC OUTPUT and GROUND (5-way terminals).

All output terminals isolated from chassis; either positive or negative output may be grounded.

#### INPUT CONNECTOR:

Three-wire safety ground line cord provided at rear of unit.

#### COMPACT DESIGN:

Suitable for rack mounting or bench use.

#### STANDARD FINISH:

Gray hammertone (special finishes to order).

#### METERS:

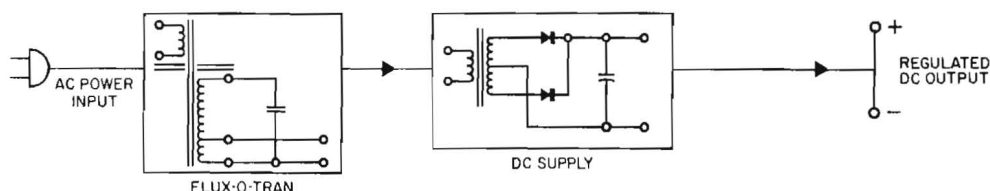
(See optional features)

#### DIMENSIONS:

7" H x 19" W x 13<sup>7</sup>/<sub>8</sub>" D.

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## OPTIONAL FEATURES:

### METERS:

Model nos. in table include voltmeter and ammeter; to specify *unmetered* unit delete suffix "M" from model no. (e.g. PR 155-4 for unit without meters)

### STANDARD MODIFICATIONS: (TO ORDER)

- For operation from 50 cycle input.
- For fixed output voltage applications.
- For convection-cooled operation (ie. no blowers), at somewhat reduced output ratings.
- Special packaging to accommodate space requirements.

## OPERATING FEATURES:

### "FLUX-O-TRAN"

#### CONSTANT VOLTAGE TRANSFORMER:

Delivers regulated square-wave voltage to rectifier, improving rectifier utilization, and reducing output ripple.

#### ADJUSTABLE WIDE-RANGE OUTPUT:

Continuously variable voltage control permits output settings from 0 to maximum rating.

#### OVERLOAD PROTECTION:

Special "Flux-O-Tran" transformer and DC overload circuit breaker allow output to be shorted without damage to unit. Ideal for lighting lamps and charging capacitive loads.

#### EFFICIENT OPERATION:

Power efficiency typically 70-80%.

#### SILICON RECTIFIERS:

Reliable, efficient, full-wave rectification.

#### CAPACITIVE FILTERING:

Provides excellent ripple reduction and minimizes transient response characteristics.

#### SERIES CONNECTION:

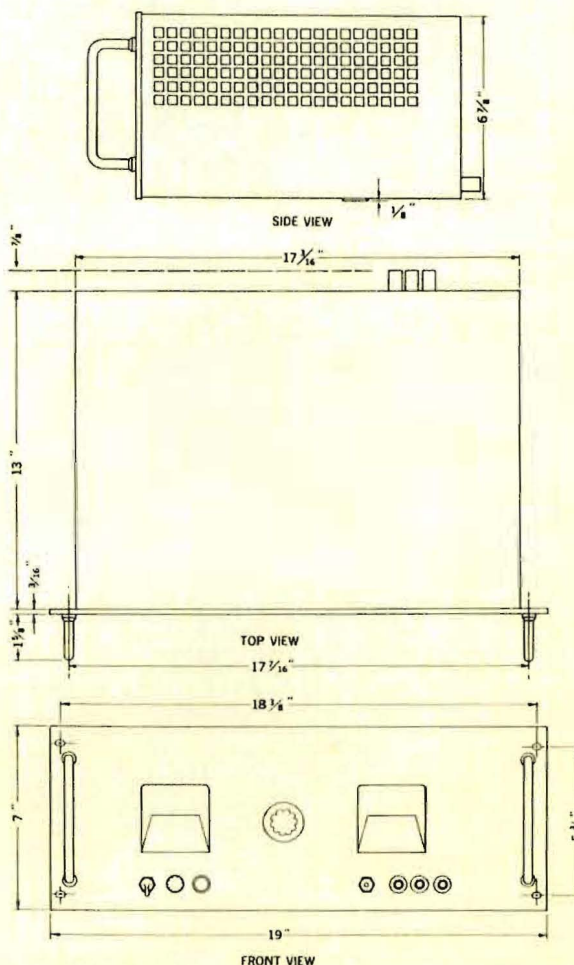
Units can be connected in series up to 400 v between chassis and either output terminal.

#### NO VOLTAGE OVERSHOOT:

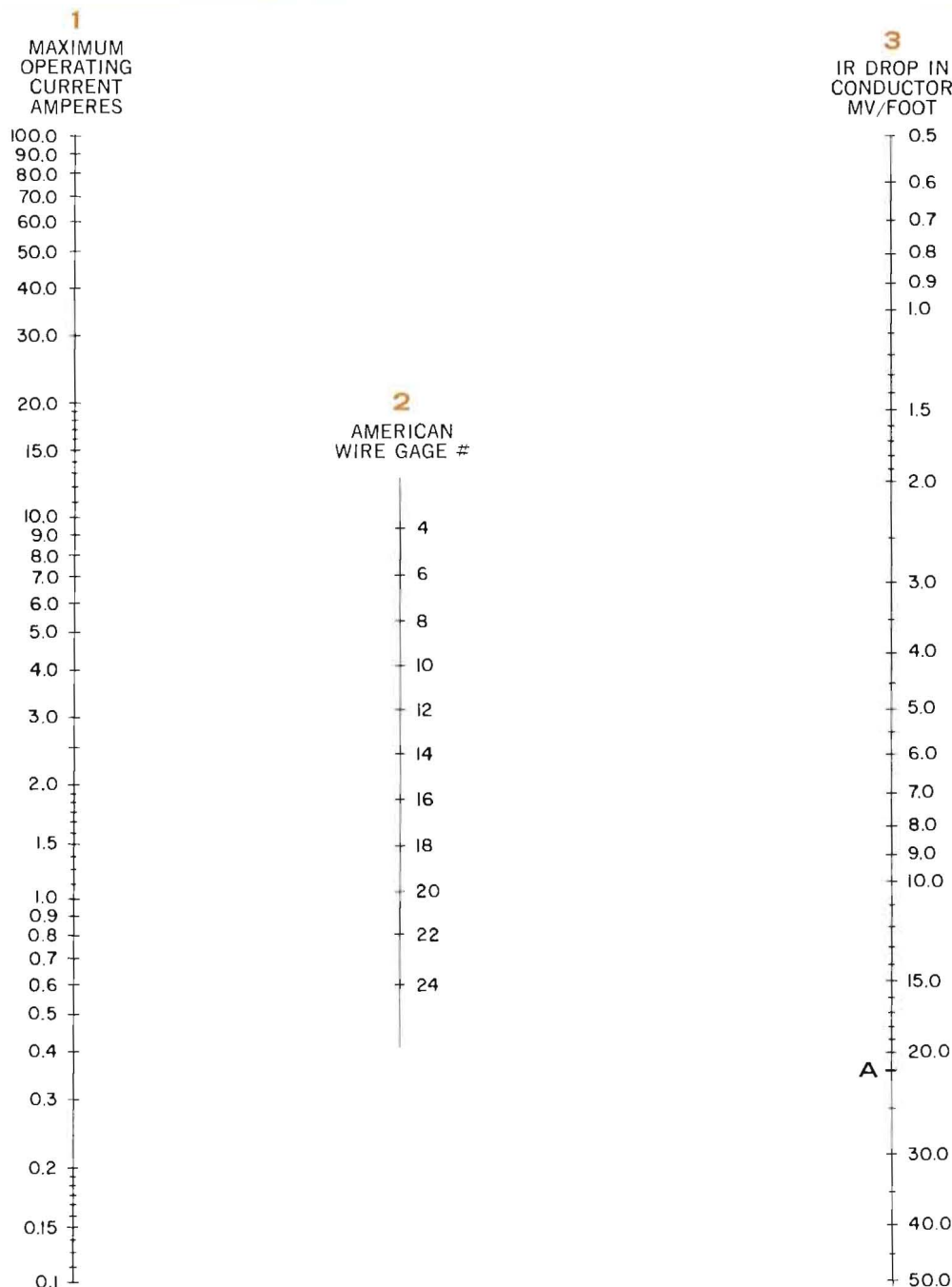
No output voltage overshoot from turn-on, turn-off or power failure.



Model PR 15-30M



## NOMOGRAPH OF VOLTAGE DROP ACROSS LOAD SUPPLY LEADS (as a function of wire size and load current)



This nomograph  
can be used  
to find:

**A.**

Maximum current carrying capacity recommended for any standard wire size.

- 1) With straight edge connect wire size (scale 2) to point "A" (on scale 3).
- 2) Read  $I_{max}$  on scale 1.

**B.**

Voltage drop in millivolts per foot for known wire size & operating current.

- 1) With straight edge connect known current (scale 1) & wire size (scale 2).
- 2) Read voltage drop on scale 3.

**C.**

Wire size required for known operating current & known maximum tolerable voltage drop across supply leads.

- 1) Determine max. tolerable drop in millivolts per foot of lead (sum of positive & negative leads).
- 2) Connect value on scale 3 as determined in step (1) to known current on scale 1.
- 3) Read wire size on scale 2.

**NOTE:** A voltage regulated Power Supply controls the voltage across its output terminals. Hence the wire conductors used to connect the load must be considered as part of the load. At high load currents the voltage drop across the supply leads may appreciably degrade regulation at the load. Kepco models equipped with the **remote error sensing** feature can automatically compensate for voltage drops of up to 500 mv across each load supply lead.



# kepeco

## from coast to coast



### ALBUQUERQUE, NEW MEXICO

V. T. Rupp Company, 1437 San Mateo Blvd., N. E., ALpine 6-0798

### BALTIMORE, MARYLAND

S. S. Lee Associates Inc., 21 Pennsylvania Ave., Towson 4, Md., VALley 3-3434

### BOSTON 32, MASSACHUSETTS

Ray Perron & Company, Inc., 1870 Centre Street, FAirview 3-1008

### CHICAGO 31, ILLINOIS

Lang, Claeson & Associates, 6733 North Olmstead Ave., SPring 4-3610

### CINCINNATI 45, OHIO

The Satullo Company, 785 West Ohio Pike, PLymouth 2-6683

### CLEVELAND 12, OHIO

The Satullo Company, 16801 Euclid Ave., IVanhoe 6-2800

### DALLAS 19, TEXAS

Arnold Barnes Company, 3603 Lemmon Avenue, LAkeside 6-8735

### DETROIT 34, MICHIGAN

Gaine Engineering, 1474 East Outer Drive, FOrest 6-5353

### HUNTSVILLE, ALABAMA

S. S. Lee Associates, Inc., Room 300, Utilities Building, JEfferson 6-0631

### KANSAS CITY 3, KANSAS

Norman W. Kathrinus & Co., 4306 Cambridge Avenue, JOhnson 2-4108

### LOS ANGELES 26, CALIFORNIA

V. T. Rupp Company, 307 Parkman Avenue, DUmkirk 7-8224

### NEW YORK CITY

Kepeco, Inc., 131-38 Sanford Avenue, Flushing 52, N. Y., INdependence 1-7000

### ORLANDO, FLORIDA

S. S. Lee Associates, Inc., P.O. Box 7896, CHerry 1-4445

### PHILADELPHIA 26, PENNSYLVANIA

Eastern Instrumentation, Inc., 613 Cheltenham Ave., WAverly 7-6269

### PITTSBURGH 37, PENNSYLVANIA

The Satullo Company, 992 Perry Highway, WEllington 1-5200

### ROCHESTER 7, NEW YORK

Naco Electronics Corp., 74 Park Ave., GR 3-4169

### SAN DIEGO 3, CALIFORNIA

V. T. Rupp Company, 3445 Fifth Avenue, CYpress 8-9835

### SAN FRANCISCO, CALIFORNIA

V. T. Rupp Company, 1182 Los Altos Ave., Los Altos, Calif., WHitecliff 8-1483

### ST. LOUIS 10, MISSOURI

Norman W. Kathrinus & Company, 4356 Duncan Avenue, OLive 2-7005

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Naco Electronics Corp., 119 Luther Ave., Liverpool, N. Y., GRanite 4-7481

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Ray Perron & Company, Inc., 36 Louis Street, AMherst 8-9631

### TULSA, OKLAHOMA

Arnold Barnes Company, P.O. Box 5417, TEmple 5-9252

### UTICA, NEW YORK

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S. S. Lee Associates, Inc., 2521 Ennalls Ave., Wheaton, Md., LOckwood 5-3066

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S. S. Lee Associates, Inc., P.O. Box 906, STate 8-0431

### CANADA, Toronto 16, Ontario

Ward Leonard of Canada, Ltd., 1070 Birchmont Road  
Box 70, O'Connor Postal Station, PLymouth 7-4131



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*to voltage regulated power supplies*

## ACCORDING TO OUTPUT VOLTAGE

(See inside front cover for index by design group)

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# REGULATED DC POWER SUPPLIES



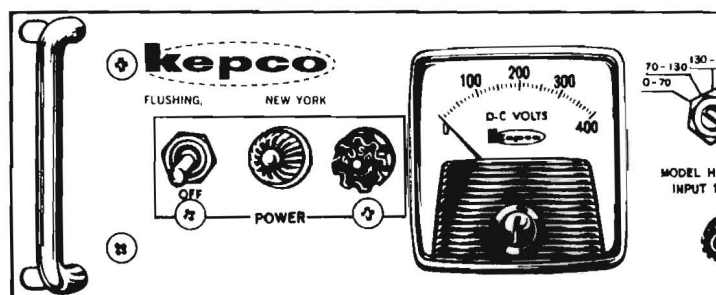
131-38 SANFORD AVENUE • FLUSHING 52, N. Y. • IN 1-7000 • TWX # NY 4-5196



# PRICE SCHEDULE



# REGULATED DC POWER SUPPLIES



131-38 SANFORD AVENUE • FLUSHING 52, N. Y. • IN 1-7000

# REGULATED DC POWER SUPPLIES

TRANSISTORIZED DESIGN GROUP



## SM 0.1% REGULATION MODELS

MODEL	DC OUTPUT VOLTS	AMPS	PRICE	SHIPPING WEIGHT (LBS.)
SM 14-7M	0-14	0-7	\$ 525.00	48
SM 14-15M	0-14	0-15	680.00	70
SM 14-30M	0-14	0-30	925.00	110
SM 36-5M	0-36	0-5	480.00	48
SM 36-10M	0-36	0-10	625.00	70
SM 36-15M	0-36	0-15	855.00	110
SM 75-2M	0-75	0-2	505.00	48
SM 75-5M	0-75	0-5	670.00	70
SM 75-8M	0-75	0-8	905.00	110
SM 160-1M	0-160	0-1	525.00	48
SM 160-2M	0-160	0-2	695.00	70
SM 160-4M	0-160	0-4	925.00	110
SM 325-0.5M	0-325	0-0.5	505.00	48
SM 325-1M	0-325	0-1	670.00	70
SM 325-2M	0-325	0-2	905.00	110

## SM 0.01% REGULATION MODELS

SM 14-7MX	0-14	0-7	\$ 725.00	48
SM 14-15MX	0-14	0-15	880.00	70
SM 14-30MX	0-14	0-30	1,125.00	110
SM 36-5MX	0-36	0-5	680.00	48
SM 36-10MX	0-36	0-10	825.00	70
SM 36-15MX	0-36	0-15	1,055.00	110
SM 75-2MX	0-75	0-2	705.00	48
SM 75-5MX	0-75	0-5	870.00	70
SM 75-8MX	0-75	0-8	1,105.00	110
SM 160-1MX	0-160	0-1	725.00	48
SM 160-2MX	0-160	0-2	895.00	70
SM 160-4MX	0-160	0-4	1,125.00	110
SM 325-0.5MX	0-325	0-0.5	705.00	48
SM 325-1MX	0-325	0-1	870.00	70
SM 325-2MX	0-325	0-2	1,105.00	110

Above SM models available without meters; delete suffix "M" from model number and deduct \$30.00 from price.

## SC 0.1% REGULATION MODELS

* SC 18-0.5M	0-18	0-0.5	\$ 255.00	22
* SC 18-1M	0-18	0-1	305.00	22
* SC 18-2M	0-18	0-2	355.00	27
SC 18-4M	0-18	0-4	480.00	43
* SC 36-0.5M	0-36	0-0.5	305.00	22
* SC 36-1M	0-36	0-1	355.00	25
SC 36-2M	0-36	0-2	495.00	43
* SC 3672-0.5M	36-72	0-0.5	380.00	25
SC 3672-1M	36-72	0-1	625.00	43

\* Rack Mounting Adapter (5 1/4" H x 19" W) available:  
Model RA-2: for mounting 2 units. } \$15.00 additional  
Model RA-3: for single unit.

Above SC models available without meters; delete suffix "M" from model number and deduct \$30.00 from price.

## SC 0.01% REGULATION MODELS

MODEL	DC OUTPUT VOLTS	AMPS	PRICE	SHIPPING WEIGHT (LBS.)
SC 32-0.5	0-32	0-0.5	\$ 490.00	35
SC 32-1	0-32	0-1	550.00	35
SC 32-1.5	0-32	0-1.5	590.00	39
2SC 32-1.5	0-32	0-1.5	990.00	55
Dual output	0-32	0-1.5		
SC 32-2.5	0-32	0-2.5	650.00	42
SC 32-5	0-32	0-5	800.00	59
SC 32-10A	0-32	0-10	950.00	85
SC 32-15A	0-32	0-15	1,100.00	98
SC 60-2	0-60	0-2	790.00	64
SC 60-5	0-60	0-5	1,190.00	115
2SC 100-0.2	0-100	0-0.2	750.00	57
Dual output	0-100	0-0.2		
SC 150-1	0-150	0-1	790.00	64
SC 300-1	0-300	0-1	940.00	130

## SR 0.1% REGULATION MODELS

SR 12-50	5-13	0-50	\$ 1,950.00	195
SR 28-50	24-32	0-50	1,950.00	235
SR 48-30	44-52	0-30	1,950.00	235

## PSC 0.02% REGULATION MODELS

PSC 5-2	0-7.5	0-2	\$ 395.00	25
PSC 10-2	7.5-12.5	0-2	395.00	25
PSC 15-2	12.5-17.5	0-2	395.00	25
PSC 20-2	17.5-22.5	0-2	395.00	25
PSC 28-1	22.5-32.5	0-1	395.00	25
PSC 38-1	32.5-42.5	0-1	395.00	25

## HB 0.1% REGULATION MODELS

HB 2M	0-325	0-200ma	\$ 295.00	35
HB 4M	0-325	0-400ma	350.00	40
HB 6M	0-325	0-600ma	395.00	43
HB 8M	0-325	0-800ma	445.00	43

## HB 0.01% REGULATION MODELS

HB 20M	0-325	0-200ma	\$ 495.00	35
HB 40M	0-325	0-400ma	550.00	40
HB 60M	0-325	0-600ma	595.00	43
HB 80M	0-325	0-800ma	645.00	43

Above HB models available without meters; delete suffix "M" from model number and deduct \$30.00 from price.

## SOLID STATE DESIGN GROUP



## PR ±1% LINE REGULATION MODELS

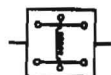
PR 15-30M	0-15	0-30	\$ 495.00	85
PR 38-15M	0-38	0-15	475.00	85
PR 80-8M	0-80	0-8	450.00	85
PR 155-4M	0-155	0-4	430.00	80
PR 310-2M	0-310	0-2	430.00	80

Above PR models available without meters; delete suffix "M" from model number and deduct \$30.00 from price.

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(Prices subject to change without notice)



**MAGNETIC DESIGN GROUP**  
**KM 0.5% REGULATION MODELS**



MODEL	DC OUTPUT		PRICE	SHIPPING WEIGHT (LBS.)
	VOLTS	AMPS		
KM 236-15A	0.1-36	0-15	\$ 740.00	248
KM 236-30	0.1-36	0-30	1,290.00	365
KM 236-50	0.1-36	0-50	2,250.00	620

**KM ±1% REGULATION MODELS**

KM 251	2-14	30a or 240w	\$ 590.00	122
KM 252	5-35	12a or 240w	590.00	122
KM 253	20-60	6a or 240w	590.00	122
KM 254	30-90	4a or 240w	590.00	122
KM 255	60-180	2a or 240w	590.00	122

**VACUUM TUBE DESIGN GROUP**  
**WIDE RANGE MODELS**



800B	#1	0-600	0-200ma	\$ 575.00	138
	#2	0-600	0-200ma		
	Parallel 1 & 2	0-600	0-400ma		
	Series 1 & 2	0-1200	0-200ma		
430D	#1	0-450	0-300ma	\$ 675.00	132
	#2	0-450	0-300ma		
	Parallel 1 & 2	0-450	0-600ma		
	Series 1 & 2	0-900	0-300ma		
2400B	#1	0-150 Bias	0-5ma	540.00	107
	#2	0-400	0-150ma		
	#3	0-400	0-150ma		
	Parallel 2 & 3	0-400	0-300ma		
103	#1	0-300	0-75ma	129.00	30
	#2	0-300	0-75ma		
	#3	-50 to +50	0-5ma		
	Parallel 1 & 2	0-300	0-150ma		
400B		0-400	0-150ma	270.00	50
		0-150 Bias	0-5ma		
605		0-600	0-500ma	425.00	119
		0-150 Bias	0-5ma		
615B		0-600	0-300ma	355.00	74
		0-150 Bias	0-5ma		
1250B		0-1000	0-500ma	650.00	203
1220C		0-1200	0-50ma	465.00	68
1520B		0-1500	0-200ma	695.00	204
2500		0-2500	0-50ma	1,275.00	135

**KR 0.1% REGULATION MODELS**

KR 11M	0-150	0-125ma	\$ 210.00	43
KR 1M	100-200	0-125ma	120.00	28
KR 2M	195-325	0-125ma	120.00	28
KR 9M	295-450	0-125ma	127.00	28
KR 12M	0-150	0-300ma	300.00	50
KR 3M	100-200	0-300ma	210.00	46
KR 4M	195-325	0-300ma	210.00	46
KR 10M	295-450	0-300ma	220.00	49
KR 8M	0-150	0-600ma	360.00	68
KR 5M	100-200	0-600ma	270.00	67
KR 6M	195-325	0-600ma	270.00	77
KR 7M	295-450	0-600ma	280.00	77

**KR 0.1% REGULATION MODELS**

MODEL	DC OUTPUT		PRICE	SHIPPING WEIGHT (LBS.)
	VOLTS	AMPS		
KR 16M	0-150	0-1.5amp	655.00	120
KR 17M	100-200	0-1.5amp	655.00	123
KR 18M	195-325	0-1.5amp	725.00	130
KR 19M	295-450	0-1.5amp	725.00	129

Above models available without meters; delete suffix "M" from model number and deduct \$30.00 from price.

**ACCESSORY EQUIPMENT**  
**OVERVOLTAGE PROTECTION DEVICE**

Installed at factory on the following 0.1% regulation SM Power Supply models:\*

MODEL	ACCESSORY NO.	PRICE
SM 14-7M	To specify: Add suffix "K" to power supply model number	Add \$95.00 to power supply price
SM 14-15M		
SM 14-30M		
SM 36-5M		
SM 36-10M		
SM 36-15M		
SM 75-2M		
SM 75-4M	To specify: Add suffix "K" to power supply model number	Add \$140.00 to power supply price
SM 75-8M		
SM 160-1M		
SM 160-2M	To specify: Add suffix "K" to power supply model number	Add \$140.00 to power supply price
SM 160-4M		
SM 325-0.5M		
SM 325-1M		
SM 325-2M		

\*Also available for corresponding 0.01% regulation models.

Installed at factory on the following models:

PSC 5-2	OE 36-5	\$ 325.00
PSC 10-2		
PSC 15-2		
PSC 20-2		
PSC 28-1		
PSC 38-1		
SC 18-0.5		
SC 18-1M		
SC 18-2M		
SC 18-4M		
SC 32-1		
SC 32-1.5		
SC 32-2.5		
SC 32-5		
SC 36-0.5M		
SC 36-1M		
SC 36-2M		

ELECTRONICS KIT	MODEL	PRICE
For experimental & pedagogical use: contains plug panel and keyed charts for 39 basic circuits.	104	\$ 29.50

Power supply model 103 is an ideal adjunct.

TEST INSTRUMENTS:	MODEL	PRICE
Dynamic Regulation Analyzer	901B	\$ 2,350.00
Variable Electronic Load	910B	\$ 990.00
Line Voltage Stepper	920B	\$ 975.00

ALL PRICES NET, F.O.B. FLUSHING, N. Y.  
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**ALBUQUERQUE, NEW MEXICO**

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**BOSTON 32, MASSACHUSETTS**

Ray Perron &amp; Company, Inc., 1870 Centre Street, FAirview 3-1008

**CHICAGO 31, ILLINOIS**

Lang, Claeson &amp; Associates, 6733 North Olmstead Ave., SPring 4-3610

**CINCINNATI 45, OHIO**

The Satullo Company, 785 West Ohio Pike, PLymouth 2-6683

**CLEVELAND 12, OHIO**

The Satullo Company, 16801 Euclid Ave., IVanhoe 6-2800

**DALLAS 19, TEXAS**

Arnold Barnes Company, 3603 Lemmon Avenue, LAkeside 6-8735

**DETROIT 34, MICHIGAN**

Gaine Engineering, 1474 East Outer Drive, FOrest 6-5353

**HUNTSVILLE, ALABAMA**

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**LOS ANGELES 26, CALIFORNIA**

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**NEW YORK CITY**

Kepco, Inc., 131-38 Sanford Avenue, Flushing 52, N. Y., INdependence 1-7000

**ORLANDO, FLORIDA**

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**PHILADELPHIA 26, PENNSYLVANIA**

Eastern Instrumentation, Inc., 613 Cheltenham Ave., WAverly 7-6269

**PITTSBURGH 37, PENNSYLVANIA**

The Satullo Company, 992 Perry Highway, WEllington 1-5200



**kepco** from coast to coast

**ROCHESTER 7, NEW YORK**

Naco Electronics Corp., 74 Park Ave., GR 3-4169

**SAN DIEGO 3, CALIFORNIA**

V. T. Rupp Company, 3445 Fifth Avenue, CYpress 8-9835

**SAN FRANCISCO, CALIFORNIA**

V. T. Rupp Company, 1182 Los Altos Ave., Los Altos, Calif., WHitecliff 8-1483

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**CANADA, Toronto 16, Ontario**Ward Leonard of Canada, Ltd., 1070 Birchmont Road  
Box 70, O'Connor Postal Station, PLymouth 7-4131

131-38 SANFORD AVENUE • FLUSHING 52, N. Y. • IN 1-7000 • TWX # NY 4-5196



# SOME THING NEW

 **POWER SUPPLY-WISE!**

# SM GROUP\*

## KEPCO VOLTAGE REGULATED

### SPEC-WISE:

Wider output voltage and current ranges available with fully transistorized regulator design. Excellent ripple reduction, regulation, transient insensitivity in high and low power ranges. Practically negligible load/line/off-on transient response characteristics. (See tables and back page).



Model SM75-8M

### RELIABILITY-WISE:

Inherent circuit protection practically eliminates "down time" and maintenance. Series pass transistors protected from damage by special power limiting input transformer (dissipation requirements of pass elements actually reduced under overload or short circuit conditions).



Model SM325-1M

### SIZE-WISE:

New sophisticated circuit simplicity permits greater reduction in size (without "shoehorn" techniques). Five wide voltage ranges available in three size groups (8 3/4", 5 1/4", 3 1/2") scaled to popular power requirements.



Model SM36-5M



131-38 SANFORD AVENUE • FLUSHING 52, N.Y. • IN 1-7000 • TWX # NY 4-519



# POWER SUPPLIES

set a new  
design  
standard!

MODEL	DC OUTPUT VOLTS	DC OUTPUT AMPS.	REGULATION*		105-125 LINE %	RIPPLE (RMS)	OUTPUT IMPEDANCE		DIMENSIONS		
			LOAD O-MAX % or $\Delta V$	105-125 LINE %			OHMS DC- 1KC	MAX. 1KC- 100KC	W	H	D*
SM 14-30	0-14	0-30	0.1 3 mv.	0.1		1 mv.	0.001	0.01	19"	8 $\frac{3}{4}$ "	13 $\frac{7}{8}$ "
SM 36-15	0-36	0-15	0.1 3 mv.	0.1		1 mv.	0.003	0.03	19"	8 $\frac{3}{4}$ "	13 $\frac{7}{8}$ "
SM 75-8	0-75	0-8	0.1 3 mv.	0.1		1 mv.	0.01	0.1	19"	8 $\frac{3}{4}$ "	13 $\frac{7}{8}$ "
SM 160-4	0-160	0-4	0.1 3 mv.	0.1		1 mv.	0.04	0.4	19"	8 $\frac{3}{4}$ "	13 $\frac{7}{8}$ "
SM 325-2	0-325	0-2	0.1 3 mv.	0.1		1 mv.	0.2	1.0	19"	8 $\frac{3}{4}$ "	13 $\frac{7}{8}$ "

Up to  
**30 AMPS. DC**  
(AT 14 VOLTS)

Up to  
**325 VOLTS DC**  
(AT 2 AMPS.)

MODEL	DC OUTPUT VOLTS	DC OUTPUT AMPS.	REGULATION*		105-125 LINE %	RIPPLE (RMS)	OUTPUT IMPEDANCE		DIMENSIONS		
			LOAD O-MAX % or $\Delta V$	105-125 LINE %			OHMS DC- 1KC	MAX. 1KC- 100KC	W	H	D*
SM 14-15	0-14	0-15	0.1 3 mv.	0.1		1 mv.	0.001	0.01	19"	5 $\frac{1}{4}$ "	13 $\frac{7}{8}$ "
SM 36-10	0-36	0-10	0.1 3 mv.	0.1		1 mv.	0.005	0.05	19"	5 $\frac{1}{4}$ "	13 $\frac{7}{8}$ "
SM 75-5	0-75	0-5	0.1 3 mv.	0.1		1 mv.	0.02	0.2	19"	5 $\frac{1}{4}$ "	13 $\frac{7}{8}$ "
SM 160-2	0-160	0-2	0.1 3 mv.	0.1		1 mv.	0.1	0.6	19"	5 $\frac{1}{4}$ "	13 $\frac{7}{8}$ "
SM 325-1	0-325	0-1	0.1 3 mv.	0.1		1 mv.	0.4	2.0	19"	5 $\frac{1}{4}$ "	13 $\frac{7}{8}$ "

Up to  
**15 AMPS. DC**  
(AT 14 VOLTS)

Up to  
**325 VOLTS DC**  
(AT 1 AMP.)

MODEL	DC OUTPUT VOLTS	DC OUTPUT AMPS.	REGULATION*		105-125 LINE %	RIPPLE (RMS)	OUTPUT IMPEDANCE		DIMENSIONS		
			LOAD O-MAX % or $\Delta V$	105-125 LINE %			OHMS DC- 1KC	MAX. 1KC- 100KC	W	H	D*
SM 14-7	0-14	0-7	0.1 3 mv.	0.1		1 mv.	0.002	0.02	19"	3 $\frac{1}{2}$ "	13 $\frac{7}{8}$ "
SM 36-5	0-36	0-5	0.1 3 mv.	0.1		1 mv.	0.01	0.1	19"	3 $\frac{1}{2}$ "	13 $\frac{7}{8}$ "
SM 75-2	0-75	0-2	0.1 3 mv.	0.1		1 mv.	0.04	0.4	19"	3 $\frac{1}{2}$ "	13 $\frac{7}{8}$ "
SM 160-1	0-160	0-1	0.1 3 mv.	0.1		1 mv.	0.2	1.0	19"	3 $\frac{1}{2}$ "	13 $\frac{7}{8}$ "
SM 325-0.5	0-325	0-0.5	0.1 3 mv.	0.1		1 mv.	0.7	3.0	19"	3 $\frac{1}{2}$ "	13 $\frac{7}{8}$ "

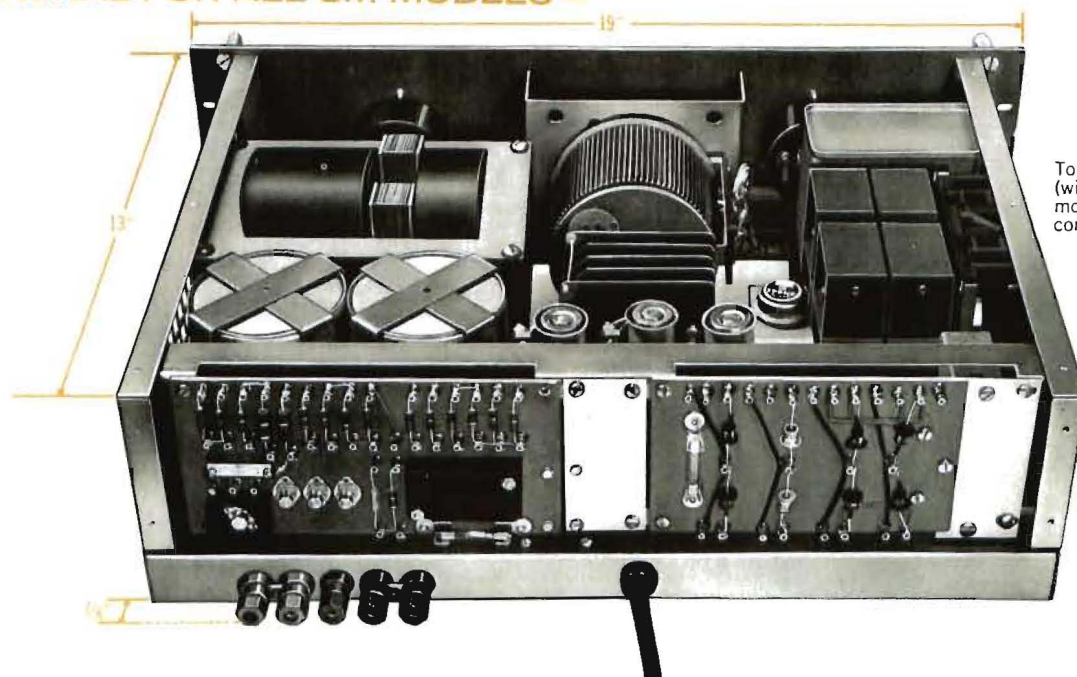
Up to  
**7 AMPS. DC**  
(AT 14 VOLTS)

Up to  
**325 VOLTS DC**  
(AT 500 MA.)

\*0.01% models available on special order

\* behind panel

## GENERAL FOR ALL SM MODELS —



Top rear view of typical SM model (with cover removed) showing modular construction and optimum component accessibility.

### SPECIFICATIONS:

#### REGULATION:

LINE: 0.1% for 105-125 volt line change at any output voltage in the specified range.

LOAD: 0.1% or absolute value ( $\Delta V$ ) shown in table, whichever is greater, for 0 to max. step load change.

#### STABILITY:

0.1% or 0.006 volts whichever is greater over a period of 8 hours.

#### RIPPLE:

1 millivolt rms.

#### TEMPERATURE COEFFICIENT:

Output voltage change less than 0.05% per °C.

#### RECOVERY TIME:

50 microseconds.

#### OUTPUT IMPEDANCE:

See table for maximum specifications of each model.

#### AMBIENT OPERATING TEMPERATURE:

50°C maximum. Unit turns off automatically when over-temperature occurs.

#### POWER REQUIREMENTS:

105-125 V AC, 60 cps.

#### TERMINALS:

*On front panel*—DC output and ground terminals, one turn voltage control, power ON-OFF toggle switch.  
*On rear of unit*—DC output and ground terminals, remote error sensing terminals.

#### COLOR:

Grey hammertone (special finishes available)

### FEATURES:

#### WIDE CURRENT & VOLTAGE RANGES:

Transistor regulated, no magnetic amplifiers, no vacuum tubes.

#### INHERENT OVERLOAD PROTECTION:

Automatically reduces dissipation requirements of pass elements during overload or short circuit.

#### REMOTE ERROR SIGNAL SENSING:

Provides means of maintaining specified regulation directly at the load.

#### OPERATIONAL SIMPLICITY:

Output voltage control continuously variable from 0 to maximum rating. No optimizing controls, range switches.

#### MODERATELY PRICED:

Bold circuit refinements and increased standardization reflected in significant price economy.

#### OPTIONAL, METERS:

Model Nos. indicated in tables are for unmetered units. To specify metered units, add "M" to Model No. (e.g. SM36-15M).

#### OPTIONAL, REGULATION:

0.01% regulation units may be obtained on special order. To specify 0.01% units, add "X" to Model No. (e.g. SM36-15X or with meters SM36-15MX).

- Continuously variable output voltage control.
- Either positive or negative output terminal may be grounded.
- Suitable for square wave or pulsed loading.
- Units may be series connected.
- Designed for bench or rack use.

FOR DETAILED SPECIFICATIONS ON MORE THAN 150 STANDARD MODEL POWER SUPPLIES  
SEND FOR KEPCO CATALOG B-601



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# POWER SUPPLY PRICE SCHEDULE

## TRANSISTORIZED DESIGN

### SC — 0.01% MODELS

#### 0.01% Regulation—Stability

SC 32-0.5	\$ 490.00
SC 32-1	550.00
SC 32-1.5	590.00
2SC 32-1.5 (Dual Output)	990.00
SC 32-2.5	650.00
SC 32-5	800.00
SC 32-10A	950.00
SC 32-15A	1,100.00
SC 60-2	790.00
SC 60-5	1,190.00
2SC-100-0.2 (Dual Output)	750.00
SC 150-1	790.00
SC 300-1	940.00

➤ Above 0.01% Transistorized units include voltage and current meters

### SC — 0.1% MODELS

#### 0.1% Regulation—Stability

SC 18-0.5	\$ 225.00
SC 18-1	275.00
SC 18-2	325.00
SC 18-4	450.00
SC 36-0.5	275.00
SC 36-1	325.00
SC 36-2	465.00
SC 3672-0.5	350.00
SC 3672-1	595.00

➤ Above prices for unmeted units. For metered 0.1% SC units, add M to the Model No. (e.g. SC 18-1M) and add \$30.00 to price.

#### RACK ADAPTER:

RA-2 (for two units) \$15.00  
RA-3 (for one unit) 15.00

### PSC — 0.02% MODELS

#### 0.02% Regulation — Stability

##### Compact Package Type

PSC 5-2	\$ 395.00
PSC 10-2	395.00
PSC 15-2	395.00
PSC 20-2	395.00
PSC 28-1	395.00
PSC 38-1	395.00

### SR — 0.1% MODELS

#### 0.1% Regulation—Stability

SR 12-50	\$1,950.00
SR 28-50	1,950.00
SR 48-30	1,950.00

## TRANSISTORIZED DESIGN

### HB — 0.1% MODELS

#### 0.1% Regulation—Stability

HB 6	\$ 365.00
HB 4	320.00
HB 2	265.00

### HB — 0.01% MODELS

#### 0.01% Regulation—Stability

HB 60	\$ 565.00
HB 40	520.00
HB 20	465.00

➤ Above prices for unmeted units. For metered HB units, add "M" to Model No. (e.g. HB 6M) and \$30.00 to price.

### SM-8¾" — 0.1% MODELS

#### 0.1% Regulation—Stability

SM 14-30	\$895.00
SM 36-15	825.00
SM 75-8	875.00
SM 160-4	<del>925.00</del> 895.00
SM 325-2	875.00

### SM-5¼" — 0.1% MODELS

#### 0.1% Regulation—Stability

SM 14-15	\$650.00
SM 36-10	595.00
SM 75-5	640.00
SM 160-2	665.00
SM 325-1	640.00

### SM-3½" — 0.1% MODELS

#### 0.1% Regulation—Stability

SM 14-7	\$495.00
SM 36-5	450.00
SM 75-2	475.00
SM 160-1	495.00
SM 325-0.5	475.00

➤ Above prices for unmeted units. For metered SM units, add "M" to Model No. (e.g. SM 14-30M) and \$30.00 to price.

For 0.01% Regulation units, add "X" to Model No. (e.g. SM 14-30X) and \$200.00 to price.

## MAGNETIC DESIGN

### KM 236 MODELS

#### 0.5% Regulation — Stability

KM 236-15A	\$ 740.00
KM 236-30	1,290.00
KM 236-50	2,250.00

### KM 250 MODELS

#### ±1% Regulation — Stability

KM 251	\$ 590.00
KM 252	590.00
KM 253	590.00
KM 254	590.00
KM 255	590.00

➤ Above magnetic units include voltage and current meters.

## VACUUM TUBE DESIGN

### KR MODELS

KR 1	\$ 90.00
KR 2	90.00
KR 3	180.00
KR 4	180.00
KR 5	240.00
KR 6	240.00
KR 7	250.00
KR 8	330.00
KR 9	97.00
KR 10	190.00
KR 11	180.00
KR 12	270.00
KR 16	625.00
KR 17	625.00
KR 18	695.00
KR 19	695.00

➤ Above prices for unmeted units.

➤ To include 3" current and voltage meters, add M to Model number (e.g. KR 1M) and add \$30.00 to the price.

➤ To include dust cover and handles for table mounting, add C to Model number (e.g. KR 1C) and add \$10.00 to the price.

➤ To include meters, dust cover and handles, add MC to Model number (e.g. KR 1MC) and add \$40.00 to the price.

## WIDE RANGE MODELS

103	\$ 129.00
400B	270.00
430D	675.00
605	425.00
615B	355.00
700B	690.00
710B	1,120.00
720B	1,600.00
730B	2,080.00
750B	795.00
760B	1,330.00
770B	1,900.00
780B	2,470.00
800B	575.00
1220C	465.00
1250B	650.00
1520B	695.00
2400B	540.00
2500	1275.00

➤ Above wide range units contain voltage and current meters except Model 103.

ALL PRICES NET F.O.B. FLUSHING, N. Y.

Prices subject to change without notice.



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